STRESS MANAGEMENT IN COMBINATION FIRE DEPARTMENTS:

ARE WE PROTECTING OUR MOST VALUABLE RESOURCE?

(EXECUTIVE LEADERSHIP)

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ABSTRACT

Medical/mental health experts estimate that more than seventy five percent of all visits to the doctor, and, a similar percentage of non-trauma deaths, are in some way connected to stress. As firefighters, stress levels can be elevated by the nature of the profession, precipitated by stressors such as the unique demands on our time, and, the rigid, structured work environment.

The problem, which provided the catalyst for this research, was an increasing number of Vineland Fire Department personnel exhibiting signs of what could be considered unhealthy levels of stress. The purpose of this research included determining whether stress was a problem in combination fire departments, and, how they are addressing the problem, such as through a stress management program; what the relative stress levels are of personnel in combination fire departments; how well these personnel are coping with this stress; and, if there is a difference in stress levels between career and volunteer firefighters; determining if morale within a department, or, the perception of department personnel on the direction their department is headed, plays any role in the level of stress experienced; and determining the components of an effective stress management program. The evaluative and descriptive research methods were utilized. The following research questions were posed:

1. How many combination fire departments consider "everyday" job and/or life related stress to be a major problem?

2. How many combination fire departments have a stress management program in place?

3. How many combination fire departments have lost personnel due to stress related retirements, resignations, disabilities, etc.?

4. What is the relative stress level, of personnel in combination fire departments, as determined by use of an evaluation instrument?

5. Is there a difference in stress levels between career and volunteer firefighters in combination fire departments?

6. Are stress levels of fire department personnel affected by their perception of conditions and morale within their department, or, by the direction they perceive their department to be headed?

7. What are the components of an effective stress management program?

An extensive literature review was conducted. Two survey instruments were utilized to gather information on stress and stress management. The first survey was developed to gather information from combination fire departments on how severe the stress problem was among their membership; whether the problem was more serious in their career or volunteer ranks; whether they had lost any personnel due to stress related problems; whether they had a stress management program in place or planned to implement one; and to identify the components of that program.

A total of 98 telephone surveys were attempted, of which, 52 or 53.06 percent were utilized for this research. The survey indicated that 36.5 percent of the departments consider stress to be a major problem, and, 94.7 percent of the departments who consider stress to be a problem felt that there was a difference in stress levels between career and volunteer personnel. Of those, 88.9 percent felt that stress levels were greater for career personnel, while 11.1 percent reported greater stress levels for volunteers. More than one-quarter of the departments surveyed, (26.9 percent) had lost personnel to stress related problems. The majority of fire departments surveyed (80.8 percent), had some type of stress management program in place.

A second three-part instrument was utilized to evaluate stress levels and tension levels/coping ability of personnel in four fire departments. One hundred fifteen surveys were

evaluated. The results indicated that nearly three quarters of the firefighters (70.4 percent), were experiencing only mild stress. The overwhelming majority of those participating in the study (93.9 percent) had a low tension level and were not having difficulty coping with their stress. Additional analysis and comparisons were made between career and volunteer firefighters including whether their stress levels were affected by their perception of moral in their department and/or the direction they believe their department is headed.

The research identified the primary elements of a comprehensive stress management program including physical fitness initiatives, nutrition and dietary information and management, and, mental health services including stress management training and intervention. The program should be just one component of a comprehensive firefighter wellness program.

Recommendations made to the Vineland Fire Department included the expansion of pre-appointment psychological screening to include volunteer personnel; development and implementation of a comprehensive stress management program, as part of a firefighter wellness program; development of behavioral indicators evaluations for use by supervisors, and, a commitment by the city to address the organizational stressors such as the leadership vacuum that currently exists, and, implementation of recommendations contained in the two consultant's reports. Additional research was recommended for the purpose of expanded analysis of the results of this research, and, to investigate related topics.

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INTRODUCTION

Stress! "Everybody has it, everybody talks about it" (Selye, 1974, p.11). It is a term that we hear and use with increasing frequency. As firefighters, we often hear the term applied to our jobs. But what is stress and how does it affect us in our daily lives, particularly in our profession as firefighters, whether career or volunteer? In a broader sense, does the stress that we, as firefighters experience, affect our department; and, is there anything that we can do to prevent or relieve this stress before it debilitates us? These concepts are several that this research will attempt to explore.

The American Institute of Stress states that, "stress is an unavoidable consequence of life" (American Institute of Stress, (a) [AIS]), and, in reality, has existed "since Adam and Eve were evicted from the Garden of Eden" (AIS, (a)). Hans Selye, the pioneer in studying stress noted, "Complete freedom from stress is death" (Selye, 1974, p. 20). Consequently, we must learn how to handle the stress that daily life deals us, and, learn how to reduce our stress level and/or learn how to better cope with the stress we can not reduce or eliminate. As fire service leaders and managers, we need to evaluate our personnel for signs that stress is reaching unhealthy levels, and, be prepared to deal with it directly.

The problem, which provided the catalyst for this research, was an increasing number of Vineland Fire Department personnel exhibiting signs of what could be considered, at least to untrained fire department managers, unhealthy levels of stress. More importantly, several members of the Department, including the author, had missed time from work, and were being, or have been treated, for stress related ailments, both physical and mental, of varying degrees of severity. The author realized that although medical confidentiality rules would prevent him from gathering accurate statistics on the extent of the problem, he could safely assume that more

personnel were probably being treated for stress related problems than those of which the department was aware.

Compounding the problem, and, ultimately the concerns of the author, was the fact that the Department is experiencing one of the rockiest periods in its 130 year history. Two different consultants have recently identified serious problems with the department, its structure, and, its operations. If the consultant's recommendations are adopted, and implemented by the city, it would result in the most significant changes in the Department and its operations, in more than 50 years. In addition, the Department has been without a permanent Fire Chief for more than 2 ½ years, (and 4 different Fire Chiefs, including 2 acting Chiefs, in a span of less than 5 years) causing a serious vacuum in continuity of leadership. Aggravating the problem even further is the fact that the two personnel who have served as acting Fire Chief frequently feuded with the politically appointed Fire Director; and, relations between the Department's career and volunteer personnel are at an all time low.

The organizational and political environments described above have combined to seriously erode morale in the Department, and, it is believed, the perception of Department personnel regarding the direction the Department is headed. The author of this paper, who is currently serving as the acting Fire Chief, and, may be designated to oversee implementation of the consultant's recommendations, believes that these issues are, in all probability, creating additional stress for the members of the Department. He realized that if the Department was going to undergo significant organizational and operational changes, that these changes, whether perceived as positive or negative, would create even more stress on Department members. Ultimately, if the Department is going to successfully transform itself as was recommended by

the consultants, and, have a reasonable chance of achieving its full potential, the issue of stress in the Department will need to be addressed as part of a comprehensive program of reforms.

The purpose of this research was four-fold. The first objective was to determine whether stress was a problem in other combination fire departments, and, if so, to evaluate if, and how, they are addressing the problem, such as through a stress management program. The second objective was to determine, through use of an evaluation instrument, what the relative stress levels are of personnel in combination fire departments; how well these personnel are coping with this stress; and, if there is a difference in stress levels between career and volunteer firefighters in these departments. The third objective was to determine if morale within the department, or, the perception of department personnel concerning the direction their department is headed, play any role in the level of stress experienced by those personnel. The final objective was to determine the components of an effective stress management program.

The results of this research will be utilized to make recommendations to the Vineland Fire Department on whether a stress management program is necessary; and, if such a program would be a beneficial human resource tool. The results will also allow the department to evaluate various stress management programs, determine the most effective components of a stress management program, and, assist with the development of a program that meets the specific and unique needs of the Vineland Fire Department and its most valuable resource, its personnel. Publishing the results of this research may be beneficial to other fire departments that are struggling with increasing stress levels among their personnel. It will provide them with data to utilize for comparison with their own statistics, and, provide them with another perspective on the development and implementation of a stress management program. The evaluative and descriptive research methods were utilized. The following research questions were posed:

1. How many combination fire departments consider "everyday" job and/or life related stress to be a major problem?

2. How many combination fire departments have a stress management program in place?

3. How many combination fire departments have lost personnel due to stress related retirements, resignations, disabilities, etc.?

4. What is the relative stress level, of personnel in combination fire departments, as determined by use of an evaluation instrument?

5. Is there a difference in stress levels between career and volunteer firefighters in combination fire departments?

6. Are stress levels of fire department personnel affected by their perception of conditions and morale within their department, or, by the direction they perceive their department to be headed?

7. What are the components of an effective stress management program?

BACKGROUND AND SIGNIFICANCE

Stress is an inescapable part of all of our lives. We are confronted with it daily, both in our personal and professional lives, and, it can have a profound effect on us, our families and our fire department. In fact, Selye in his first book, "The Stress of Life" states "Without stress, there would be no life" (as cited in AIS, (a)).

Time Magazine, in a June 1983 cover story (as cited in AIS, (b)), referred to stress as "The Epidemic of the Eighties" and characterized it as "our leading health problem" (Time 1983). The American Institute of Stress (AIS) estimates "that 75 to 90 percent of all visits to primary care physicians are for stress related problems" (AIS, (b)). The American Psychological Association's (APA) estimate (as cited in Todd, 2001) was even higher in 1997, stating that up to

90 percent of all visits to a physician are stress related (APA, 1997). The Surgeon General of the United States, in a 1988 report, estimated that stress related diseases kill 80 percent of the people who die of non-traumatic causes (Flannery, 1991, p. 41).

If we make the assumption that the AIS, APA and Surgeon General's estimates are accurate, stress is having a significant impact on fire department operations. Brigati (1995) supports that assertion when he states, "Stress is the most perilous occupational hazard before the modern fire service. Collected evidence supports the claim that emergency services personnel are at risk of developing stress disorders" (Brigati, 1995, p. 34). Levels of sick or injury leave usage, reduced personnel productivity, increased health care and insurance costs, etc., could all be directly connected to the stress that personnel are experiencing. In fact, stress related disability claims among public safety personnel have increased significantly in recent years and are now five times greater than the same type of claims in the private sector (Fishkin, 1991a, p. 16).

The issue becomes even more complex when applied to volunteer personnel in combination fire departments. Many of the issues mentioned above, would apply primarily to career personnel. However, volunteer personnel who suddenly become inactive, or resign without warning, could be exhibiting signs of stress induced problems. Increasing numbers of responses, and, increased training requirements, necessitating the commitment of additional time to the fire department, in conjunction with, increased risks inherent to the job, all could contribute to the stress experienced by volunteer personnel. Couple these issues with the stress they may be experiencing in their personal lives, and, in their primary job(s), and, the potential magnitude of the problem starts to come into focus.

As we examine stress in the fire service, and particularly in combination fire departments, it is important to note that even for volunteer personnel, being a member of the fire department is

equivalent to working another job. In addition to the obvious responses to emergency incidents, there are rules, regulations, policies and procedures to be followed; and, meetings, drills and other details to be attended. All of these factors can, in and of themselves, cause stress, even without taking into account the stress of spending additional hours away from family or primary employment in order to maintain membership in the fire department.

Although they receive compensation for their services, career firefighters can be subjected to many of the same stressors as their volunteer counterparts. Many firefighters, especially younger members, are forced to work more than one job in order to make ends meet. They work shift work, interrupting their body's normal routine. They work weekends and holidays, and because of their job, at times may be forced to miss important family events. All of these situations can increase the stress experienced by members of the fire service.

In 1999, the National Institute for Occupational Safety and Health (NIOSH) prepared a report titled *Stress at Work*. Citing statistics from a number of studies that have been conducted on job stress, this document reported that:

- According to a survey(s) by Northwestern National Life, 40% of workers reported their job was very or extremely stressful; and, 25% view their jobs as the number one stressor in their lives;

- According to a survey by the Families and Work Institute, 26% of workers said they were "often or very often burned out or stressed by their work";

- According to a survey by Yale University, 29% of workers felt quite a bit or extremely stressed at work;

- According to a study by St. Paul Fire and Marine Insurance Company, job stress
  is more strongly associated with health complaints than any other stressor,
  including financial or family problems (NIOSH, 1999, p. 4).

While the purpose of this research is not to examine stress in the combination fire service as it relates specifically to "the job" but rather as it relates to the overall lives of the firefighters in general, it may be safe to assume that statistically, the fire service as a whole, and, the Vineland Fire Department, in particular, would experience job stress numbers that are as a minimum, equal to the findings in these studies. Since stress is cumulative in nature (P. Finley, personal communication, July 29, 2002; Murdock, 1981/1986: Todd, 2001), every day stress coupled with job related stress can combine to take a serious toll on an agency, and its most important asset, its personnel. Suzanne Todd (2001), of the California Department of Forestry, writing on research that she conducted in Placer County, California, concluded that "cumulative stress is pervasive in the fire service" and includes the "culmination of occupational stress (including Critical Incident Stress) and the stresses of daily life" (Todd, 2001, p. 30).

The fact that stress is cumulative is very significant. According to Todd:

> Today's fire service employee faces a number of stressors;
> if those stressors are not well managed, the employee can
> suffer what is termed "Accumulative Stress Syndrome".
> These stressors include station and position (rank) stress,
> home stress, financial stress, incident stress, and critical
> incident stress. Failure to manage these stressors can result
> in anger, depression, substance abuse, anxiety attacks,
> inappropriate relationships, and spending money unwisely

(Todd, 2001, p. 15).

Stewart (1984) agrees when he offers this blunt assessment of firefighter stress provided by Assistant Chief Dennis Compton of the Phoenix, Arizona Fire Department:

> Most jobs possess a measure of stress; few don't. But the
>
> cumulative effect of abuses heaped onto firefighters and
>
> medics from the public and what these individuals endure
>
> in their job can, over time, be brutal in its prolonged effects
>
> (Stewart, 1984, p. 69).

Whatever the cause, whether it be the result of everyday stress, or, job related stress, once a member of the fire service becomes debilitated by stress, that person's department has lost a major resource and may have squandered away a significant investment. The cost of processing a member prior to appointment, training costs, both probationary and continuing, and, the intangible costs associated with lost experience, potential and leadership all must be assigned a value. However, the loss of a member to the effects of stress, in many cases may not be obvious, since stress related ailments can manifest themselves in different ways, often seemingly unconnected.

Fire departments traditionally have not addressed the issue of stress in their ranks in a proactive manner. In fact, "two approaches seem to be prevalent: (1) the ostrich approach, "Don't look and you won't see", and (2) the kitchen approach, "If you can't stand the heat, get out of the kitchen" (Shearer, 1989, p. 24). Attitudes such as these, coupled with the difficulty assessing seemingly unrelated health problems for stress related links, is in all probability hiding the true extent of the stress problem in the fire service, and, may be masking a potentially dangerous epidemic.

City of Vineland

The City of Vineland is located in Cumberland County in southern New Jersey. Covering an area of 69.1 square miles, it is the largest city, in area, in the state, and, the economic hub for several southern counties. According to the United States Census Bureau, the city has a resident population of 56, 271(United States Census Bureau, August 8, 2001). Vineland was incorporated as a city on July 1, 1952, culminating the consolidation of the Borough of Vineland and surrounding Landis Township (A.M. Barsotti, personal communication, May 1998; Finley, 1999). The city is the largest component of the Vineland, Millville, Bridgeton Metropolitan Area (United States Census Bureau, August 8, 2001).

The physical demographics of the city cover a broad spectrum. The downtown/central core area is typical of those found in most other northeastern cities. It consists of a struggling commercial and shopping district, and, closely spaced two and three story wood frame dwellings, many of which have been converted from single family to multi family use. There are several high rise apartment buildings and a number of garden apartment complexes, many of which provide subsidized housing. In addition, an inventory of vacant factories and warehouses provide silent testimony to the city's previous role as a leading clothing manufacturing center (J. Carr, personal communication, July 1999; Finley, 1999).

Surrounding this central core in all directions is a rather large area whose development trends are typically suburban. This area of the city has tree lined residential streets in long established neighborhoods as well as a significant number of newer tract developments. Several large shopping centers, including a covered mall, numerous smaller strip malls, garden apartment complexes and a growing number of professional office complexes are located in this area. There are also a number of extremely successful industrial parks that cater to a growing number of light

and medium duty manufacturing operations. The outermost areas of the city still support a significant number of working farms and undeveloped woodland (J. Carr, personal communication, July 1999; Finley, 1999).

In 1986, Vineland, along with adjacent Millville, was designated a state Urban Enterprise Zone, allowing it to offer significant incentive packages to businesses considering locating in the zone. The designation also allows businesses in the zone to charge three percent sales tax, one half the state level. All monies collected from the sales tax are also returned directly to the municipality (Finley 1999). According to Alan Steinberg, Chairman of the New Jersey Urban Enterprise Authority, "Vineland is the great success story" among 27 zones in the state ("In Enterprise Zone, Vineland Making a Comeback", 1997; Finley 1999). The zone has resulted in more than eighty million dollars in new ratables for the city and created 7,498 permanent and 1,833 part times jobs ("In Enterprise Zone, Vineland Making a Comeback", 1997; Finley, 1999).

On January 1, 1999, Cumberland County, in which Vineland is located, was designated a Federal Empowerment Zone, one of only 15 nationwide. This designation is slated to mean more than 100 million dollars in investment in the community over the life of the program (J.M. Lelli, personal communication, October 13, 1999; Finley, 1999).

Vineland Fire Department

The Vineland Hook and Ladder Fire Company, formed on July 23, 1872, is the original ancestor of the Vineland Fire Department. The department made the transition from a fully volunteer to a combination department in 1931 when the first career firefighters were appointed ("History of the Vineland Fire Department", 1976).

The department, in it's present form, was established on May 26, 1953 when the City Council passed Ordinance #76, *"An Ordinance to Establish, Regulate and Control the Fire*

Department of the City of Vineland, to Regulate and Define the Officers and Members Thereof,

Their Duties and Compensation" (City of Vineland Ordinance #76, 1953, A.M. Barsotti,

personal communication, May 1998; Finley, 1999). This ordinance consolidated the three

independent fire companies from the Borough of Vineland with the four from Landis Township

into a municipally operated fire department (A.M. Barsotti, personal communication, May 1998;

J. Carr, personal communication, July 1999).

Today the department operates from six stations, one staffed by career personnel and the

remaining five staffed by volunteer personnel, who respond to the station upon receipt of an

alarm. There are no requirements for duty crews, or, in station hours. Current staffing consists of

27 career personnel, and, approximately 140 volunteers. The department operates twelve

engines, of which three are quints, two ladders, two rescues (non-EMS), three brush units, and, a

hazardous materials response unit (Finley, 1999). A 1997 survey of the department by the

Insurance Services Office resulted in recommendations for three additional stations (C. F.

Shaner, letter, September 8, 1997). In 2001, the department answered 2,026 calls for assistance.

The Department is currently sitting at what is perhaps the most significant crossroads in

its history. In the past 1 ½ years, two independent consultants have looked at fire department

operations and submitted recommendations for changes and improvements. The second report,

prepared by Carroll Burracker and Associates makes more than 75 specific recommendations for

changes in the Department encompassing departmental structure, chain of command, operations,

training, deployment, etc. If enacted by the city, this would represent the most significant change

in the current department since the consolidation of the Borough of Vineland and Landis

Township fire companies into the current city fire department, more than 50 years ago.

The process leading up to the decision by the city administration to bring in outside consultants to study the department, the process of the evaluation itself, and, the protracted wait while the city administration decides whether it will support implementation of the recommendations could certainly be viewed as stressors for members of the department. However, whether they view implementation of the consultant's recommendations in a positive or negative perspective, this process is likely to prove the most stressful to the members of the Department. It would seem safe to conclude that enabling personnel to cope with the stress associated with this transition would help to facilitate a smoother process, and, ultimately prove beneficial to the Department, its personnel, and, the citizens of the city.

In addition to the organizational issues discussed above, the department is struggling with steadily increasing responses caused by unprecedented development occurring in the city, as well as, from the proliferation of automatic fire alarms being installed in both new and existing structures. In fact, residential fire alarm responses, the subject of a previous applied research paper by this author, have become a significant source of contention within the Department and have, in all probability, increased stress levels among department members, regardless of their position on the subject.

The primary purpose of this research is to provide information that the Vineland Fire Department will utilize to assess and analyze the levels of stress that personnel in combination fire departments, including Vineland, are experiencing; how well personnel are coping with this stress; how other combination fire departments deal with the issue of firefighter stress; and, whether some type of formal stress management program should be initiated. The research will be used to concurrently satisfy the applied research project requirements associated with the *Executive Leadership* course, a component of the Executive Fire Officer Program at the National

Fire Academy. The research relates to Unit 2, Developing Self as a Leader, Unit 12, Influencing, and Unit 14, Persuasion, as it will require application of a variety of leadership, influencing and persuasion principles and skills to move a stress management program in the Vineland Fire Department from concept to reality. Convincing skeptical firefighters, union members, officers and politicians that a stress management program, with its associated costs is a worthwhile expenditure will not be easy. Even if the program becomes a reality many firefighters will need to be persuaded to voluntarily participate in the program, or, utilize its resources.

The results of this research will be of great significance to the Vineland Fire Department. As previously discussed, the Department is at a major crossroads in its history. How well the Department meets these challenges will be determined by how well its personnel meet them. How well its personnel meet the challenge may well be determined by how effectively they are able to deal with the stress associated with these changes, coupled with the normal stress in their lives. Major organizational changes not withstanding, helping personnel in the department cope with, and manage, their stress will be extremely beneficial to all Department stakeholders. The research will provide the Vineland Fire Department with statistics and information that will assist them with determining how serious the stress problem is in combination fire departments; how well the personnel in these departments are coping with stress; what other combination fire departments are doing to deal with the problem; and, perhaps most importantly, what components are necessary for an effective stress management program. The research may prove to be beneficial to other fire departments, whether career, combination or volunteer, as they struggle to address the complex issues associated with stress in the fire service.

LITERATURE REVIEW

Hans Selye, who is considered by many to have pioneered our current definition of stress, and who did extensive research on the subject wrote in 1974, " The word "stress" like "success," "failure," or "happiness," means different things to different people, so that defining it is extremely difficult although it has become part of our daily vocabulary" (Selye, 1974, p.12). However, in order to conduct research on a subject, one must have some working definition of the subject they are going to examine. Consequently, the literature review began with an attempt to provide a definition of stress.

According to Webster's Ninth New Collegiate Dictionary, "stress is a physical, chemical, or emotional factor that causes bodily or mental tension and may be a factor in disease causation" (Webster, 1988, p. 1166). Selye (1974) defined stress as, "the nonspecific response of the body to any demand made upon it" (Selye, 1974, p. 14). Selye also noted that stressors can be good or bad, and it is immaterial which they are, rather it is intensity of the stressor and consequently its demand for readjustment or adaptation that is important (Selye, 1974, p. 15).

Webster and Selye were influential on this research because they provided a perspective on how broad the definition of stress can be. Compounding the problem as Selye noted is that "… "stress" … means different things to different people …" (Selye, 1974, p. 12). However, by blending the two definitions together, one could conclude that stress can be triggered by almost anything that happens to us in our daily lives, whether positive or negative.

It is also important to note early on, several other distinctions with regard to stress. Tubesing (1981) provided a differentiation between stress and stressors when he wrote:

> Contrary to popular belief, stress is not the pressure from the
>
> outside – the divorce, the death, the burned supper, the vacation,

the isolation. Those are stressors. Your response to those situations

constitutes stress.

The distinction is important. Stressors are the multitude of daily

occurrences that call upon you to adapt. Stress is your response as

you attempt to make the adjustment (Tubesing, 1981, p. 4).

Tubesing also reaffirms, as Selye had done previously, that stress can be either positive or

negative. He argues that stress is necessary in everyone's life and "can be a turn-on" (Tubesing,

1981, p. 4). "It can pump you up, give you energy, supply that zest for living" " (Tubesing, 1981,

p. 4). However, he quickly notes: "But stress can also become destructive. It can turn into

distress. It can gnaw away at you and sap your energy over the months and years" (Tubesing,

1981, p. 4).

Tubesing influenced this research primarily by clarifying the fact that stress is the body's

reaction or response to events or situations that affect it, not the event or situation itself. He

further makes the distinction between positive stress or eustress, and, negative stress or distress.

This distinction is important because it is distress, or destructive stress, that we must learn to

cope with and manage in our daily lives. As fire service managers we must provide our

personnel with the training and the tools to do so themselves. The distinction between positive

and negative stress is also significant to this research because the evaluation instrument that will

be utilized to study stress levels in personnel in combination fire departments, utilizes a battery

of questions about stressful attitudes or feelings, to determine how significant that person's

negative stress level is.

Selye (1974) wrote on a concept called the General Adaptation Syndrome, G.A.S., which

he first developed in the mid 1930's. According to Selye, G.A.S. occurs in three stages:

"1) the alarm reaction, 2) the resistance stage, and 3) the exhaustion stage" (Selye, 1974, p. 26).

During the alarm reaction stage, which is also known as the emergency reaction, physiological changes occur in the body in response to the stress being experienced. These physiological changes can be subtle in nature, or, can be significant such as the adrenalin rush that a person may experience when confronted with a crises. Selye notes, "At the same time its resistance is diminished and, if the stressor is sufficiently strong (severe burns, extremes of temperature), death may result" (Selye, 1974, p. 27). This stage of G.A.S. is also commonly referred to as the fight or flight stage.

According to Selye, the second stage of G.A.S. is known as the stage of resistance. He states: "Resistance ensues if continued exposure to the stressor is compatible with adaptation. The bodily signs characteristic of the alarm reaction have virtually disappeared, and resistance rises above normal" (Selye, 1974, p. 27).

Shearer (1989) adds that during the second stage of G.A.S, "… the body adjusts to the situation and in many cases this is within the individual's control" (Shearer, 1989, p. 22).

Selye goes on to explain that the final stage of G.A.S. is the exhaustion stage. He explains, "Following long-continued exposure to the same stressor, to which the body had become adjusted, eventually adaptation energy is exhausted. The signs of the alarm reaction reappear, but now they are irreversible, and the individual dies" (Selye, 1974, p. 27).

Shearer explains in simpler terms that the exhaustion stage is the point where, "… the body can no longer maintain its resistance" (Shearer, 1989, p.22). He writes:

> Many of the emotional responses that originally appeared during the
> alarm reaction stage begin to reappear at this time. Severe physiological
> and psychological problems may occur once the individual's defenses

have collapsed to the exhaustion stage (Shearer, 1989, p.22).

The writings of Selye and Shearer on the General Adaptation Syndrome were significant to this research by providing background into how the body reacts and/or adapts to the stressors to which it is exposed. This is important to the research because G.A.S. clearly shows that eventually the body will reach a point where the stress that it is experiencing will overwhelm it, resulting in the loss of its ability to "cope" with the stress. Selye (1974) noted that fact when he stated, "Because of its great practical importance, it should be pointed out that the triphasic nature of the G.A.S. gave us the first indication that the body's adaptability, or adaptation energy, is finite" (Selye, 1974, p. 26).

In 1984, Stewart wrote, "Stress is one of the most common enemies a firefighter can battle" (Stewart, 1984, p. 69). However, quoting Lieutenant Robert Quilty of the FDNY Counseling Services Unit, he notes, "Everyone deals with stress differently. What you might call stressful may roll off my back" (Stewart, 1984, p. 69).

Stewart contributed to this research by providing the background that nearly 20 years ago stress was beginning to be recognized as a significant and serious problem in the fire service. He also reaffirms Selye's position that one of the things that makes stress management so difficult is that everyone views and handles stress differently. Any stress management program will need to have significant built in flexibility to meet the needs of a diverse fire service.

Fishkin (1991c) discussed how organizational factors in the fire department can have a significant impact on the stress levels experienced by members of that organization. He states, "Yet, as most firefighters know, the internal, departmental or organizational factors that trigger or intensify emotional distress among employees are often more injurious or toxic to the firefighter than the actual requirements of the job itself" (Fishkin, 1991c, p. 28)! Among the

significant stressors that he identifies in an abbreviated list include, deficient managerial skills (he considers this to be the primary stressor), labor management friction, excessive paperwork, poor detection and management of stress related disorders, and, hiring individuals who do not meet standard employment criteria (Fishkin, 1991c, p. 29).

Fishkin also states, "Research has shown time and again that there is an inverse relationship between employee stress and productivity" (Fishkin, 1991c, p. 28). He makes the case that stress levels are also tied directly to employee morale levels which again connect directly back to productivity. He further argues that one of the primary problems with stress as it relates to the fire service is that, "Many departments and agencies today treat employee stress on a purely crises intervention basis" (Fishkin, 1991c, p. 28).

Fishkin makes recommendations for a 12 point program that fire departments could implement with the two-pronged purpose of reducing cardiovascular problems and other stress related ailments. He concludes by advocating that, "…, organizations can be changed through awareness, education, and a conscious effort on the part of management to reduce those conditions which promote occupational stress among employees, including themselves" (Fishkin, 1991c, p. 30).

Fishkin influenced this research in a number of ways. First, he added support to the author's belief that the morale within a department, and, the perception of department personnel on the direction they perceive their department to be heading affects their stress level. This concept is one of the specific research questions being studied. Second, his writings provided support to the idea that reducing or eliminating intra-departmental, or organizational, stressors will significantly reduce overall stress among members of the fire department. Most of the stressors contained on his list, are, with some modification, prominent in the issues confronting

the Vineland Fire Department. Effectively meeting this challenge will be critical to the Vineland

Fire Department's reorganization efforts. Finally, his advocacy for early detection and

intervention in employee stress management supports the author's belief that a stress

management program is a critical component of a firefighter wellness program.

Todd (2001) writing on research that she had conducted in Placer County, California,

concluded that "cumulative stress is pervasive in the fire service" and includes the "culmination

of occupational stress (including Critical Incident Stress) and the stresses of daily life" (Todd,

2001, p. 30). In her research Todd listed numerous stressors that can contribute to the buildup of

stress in fire service personnel. She states:

> Cumulative stress can cause disruption of emotional and
>
> physical well being among emergency response personnel.
>
> The degree of mental or physical disruption may vary from
>
> person to person, based upon individual needs, concerns,
>
> personalities and perceptions, as well as different coping
>
> mechanisms (Todd, 2001, p. 31).

Todd also states that the numerous negative physical and psychological manifestations of

stress "in an individual can negatively effect an organization… as demonstrated in higher

absenteeism, attrition, and monetary costs, as well as decreased employee performance" (Todd,

2001, p. 32). She concludes her research with recommendations for a comprehensive stress

management program that includes both preventive (proactive) and intervention (reactive)

components.

Todd was influential on this research by virtue of the conclusion she reached in her

research, that stress in the fire service is definitely cumulative in nature. This finding is

significant because personnel who appear to be functioning normally and adequately coping with the stress in their lives may be only one small triggering event away from a significant stress related problem. An on-going stress management program should not only be able to assist with coping with this cumulative stress, but, would hopefully identify personnel who may need more aggressive intervention.

In 1997, Mozingo and Potkin presented a little researched concept called "The Middle Ground" which they define as an area of moderate stress between ordinary stress and critical incident stress. In The Middle Ground, "…, the traumatic stress is piling up in the emotional bank of the individual. The stress is compounding one event after another. You may not be compensating as well as normal and this can be considered your wake-up call" (Mozingo and Potkin, 1997, p. 5). In other words, the daily encounters with disturbing events that firefighters consider to be "just part of the job" is creating stress that is accumulating and will eventually cause significant emotional distress. Mozingo and Potkin state, "The research indicates that it is this repetition of moderately-rated stressful events that is more linked to psychological trauma than even single events of higher rated stress" (Mozingo and Potkin, 1997, p. 5).

Mozingo and Potkin recommend that fire departments look seriously at how to deal with this frequently neglected area. They argue that normal stress management programs designed to deal with ordinary stress fall short, and, likewise, critical incident debriefings focus on one specific event, leaving the cumulative moderate stress untreated. They advocate an educational approach to dealing with this stress by acknowledging the stress that these incidents create, talking about the disturbing elements encountered, being supportive, and using each incident as an opportunity to learn and grow. By following this process and handling each event properly, they feel that the emotional health of firefighters will be improved.

Mozingo and Potkin contributed to this research because they introduced the idea that cumulative stress from many incidents that we consider to be "just part of the job", can be more devastating emotionally than one or two career defining critical incidents. This theory is consistent with the General Adaptation Syndrome introduced by Selye (P. Finley, personal communication, July 29, 2002). It was also significant that most stress management programs stop short of addressing this problem. Since one of the anticipated outcomes of this research may be a recommendation that the Vineland Fire Department implement a firefighter wellness program, including a stress management component, insuring that a newly developed program addresses all areas of concern, including moderate or middle ground stress, and, meets the comprehensive needs of the Department's members, will be paramount to its effectiveness and ultimately its success.

A December 2000 article in Fire Engineering Magazine reported on a 1998 study conducted by Bettina GoriBen on firefighters in the Frankfort and Dortmund, Germany Fire Brigades. The study was conducted in response to a 1996 law enacted in Germany titled, "Law Concerning Safety of Work" which states, "the employer is obliged to prove that practicing any profession within his organization is not harmful to health" (Fire Engineering, 2000, p. 28). GoriBen found that, "Despite the fact that there is greater stress while in action than while performing everyday duty at the fire station, firefighters' psychological health is more strongly impaired by the latter" (Fire Engineering, 2000, p. 28). She wrote that firefighters perform a multitude of tasks during their in station time including secretarial/clerical tasks, housekeeping tasks, station, apparatus and equipment repair and maintenance, and, ordering/inventory tasks. The performance of these tasks, for which they may not be prepared, coupled with such stressors as work control/decision latitude, concentration requirements, time constraints, closeness of

cooperation, and, various environmental conditions, resulted in increased incidence of long term psychosomatic ailments.

GoriBen noted that although German firefighters spend two years in training studying for emergency response work, there is no training or preparation for the responsibilities that they will be expected to undertake once they are assigned to a station, despite in station time accounting for 70% to 80% of their on duty time. She concludes, that although additional study should be done on the subject, that better preparation of firefighters for the non-emergency duties they will be expected to perform, in conjunction with a commitment by fire service leadership to address issues of concern to their subordinates, might reduce incidence of these psychosomatic ailments by up to 50%.

GoriBen's work influenced this research by presenting the surprising perspective that firefighters in station duty time can have a greater impact on their emotional well-being than emergency scene operations. She also influenced it by making the case that in order to assist with reducing job related stress, we need to better prepare our firefighters for the "routine" part of their job.

One could also draw a conclusion, based upon the research of GoriBen and Fishkin, that a comprehensive stress management program must be more than periodic stress evaluations of firefighters, more than training in stress reduction and coping techniques, and, more than a place where firefighters can go to get stress related assistance. In order for a stress management program to be effective, fire service managers and leaders must commit to identifying, addressing and attempting to correct the organizational and environmental issues that contribute to stress in their personnel. This will not be an easy task considering the disciplined, quasi-military organizational structure of most fire departments.

Since the focus of this research is combination fire departments, it is important to also look at the issue of fire service stress from the perspective of volunteer firefighters. Streng (1985) wrote:

> Stress is a major problem in volunteer fire departments
> and it's a big reason for attrition. The basic profile of the
> volunteer firefighter is head of the household with
> dependents, and leaving home time and time again for
> unexpected alarms and time consuming meetings creates
> a great deal of stress (Streng, 1985, p. 24).

Streng also pointed out that since many volunteer fire departments serve small communities, that stress is created by "the pressure to perform for people one knows and the high probability of responding to an accident involving a friend or relative" (Streng, 1985, p. 24). As with many of the other studies related to firefighter stress, Streng also cites organizational factors as causes of stress in the volunteer fire service. Specific organizational stressors that he identifies "include perceptions of a lack of competence in the chief, lack of policies and inadequate standard operating procedures" (Streng, 1985, p. 24).

In 1990, Britton, Moran and Correy described an extensive study relating to stress that involved members of the Australian fire service as a component of the Australian disaster management system. The study focused on the role stress plays in the duties of permanent volunteer emergency workers. The study explored a number of areas related to volunteerism including how the volunteers integrate into the disaster management system, and, motivational factors for becoming a volunteer.

The study ultimately produced four propositions that suggest that all things being equal, such as training, experience, desire to mitigate the incident, etc., that the stressors experienced by volunteers should be similar to those experienced by career officers and personnel. This was, however, not the case. Britton et al. report:

> What these four propositions suggest is that a key stressor
>
> which separates the permanent volunteer and the career officer
>
> has little to do with disaster as such, but rather has a lot to do
>
> with the organizational context within which they both operate.
>
> The difference is however, that one group creates stresses
>
> for the other: the volunteer has to put up with additional stress
>
> factors created by career officers, a factor which is enhanced
>
> by the bureaucratic nature of the disaster relevant organizational
>
> network (Britton et al., 1990, p. 36).

Britton et al. state that volunteers will play an integral role in any large disaster event and that this should be a considered a 'given'. "What appears to be happening, however, is that career emergency officers do not accept this. It is possible that this results, in part, from the specific secondary (occupational) socialization they have received during initial training (Britton et al., 1990, p. 36). They offer the opinion that this situation creates several contradictory dilemmas for the career officer. They conclude:

> This contradiction is fostered by the 'closed-rank' attitude of
>
> 'professionalism' which pervades established emergency officers,
>
> which 'closes off' both the permanent disaster volunteer as well
>
> as the larger citizen group. Ironically however, this attitude may

well enhance the career officers' ability to withstand the occupational

hazards they face, which includes, of course, disaster related tasks

(Britton et al., 1990, p. 37).

The writings of Streng and Britton et al. were significant to this research because they

explored the issue of fire service stress from the perspective of the volunteer firefighter or

emergency worker. Both authors reached the same conclusions as Fishkin and GoriBen, in that

organizational factors are a primary cause of stress for firefighters, whether career or volunteer.

As previously discussed, identifying and addressing these issues are paramount to a successful

stress reduction strategy. Both Streng and Britton et al. presented information that illustrates the

complexity of attempting to develop an overall stress management program, especially in a

combination fire department. As noted in Britton et al.'s work, what may reduce stress for one

group within the organization may increase it for another, or, may deprive some personnel of

effective strategies for coping with stress.

In 1990, Carter wrote on how stress reduction can be a vital component of self motivation

for fire officers. He states "The best fire officer in the world is absolutely useless for any task if

that person is a burnt-out hulk" (Carter, 1990, p. 23). Even worse, perhaps in extreme situations,

is when one "turns to alcohol, drugs, easy women, or some combination of the above" (Carter,

1990, p. 22), as an outlet for stress relief. Carter advocates dividing life into three distinct

components: home, work and play (Carter, 1990, p. 22). Each of these components of life is like

a position on a three point switch. He proposes that with practice, a fire officer should be able to

"throw the switch" from work to home to play and effectively block out the other two

components. Carter offers that if an officer becomes proficient at this technique, he will reduce

his stress level and lessen his chances of suffering from burnout or a long list of other stress related maladies.

Christie (1997) wrote on the difficulty faced by EMS personnel in balancing the competing demands of job and home. Although her focus was primarily EMS personnel, the concepts she discusses are equally applicable to fire service personnel. She states, "Because stress is found at home, at work and even in leisure activities, to obtain maximum functioning, all these areas must be balanced with regard to the total amount of stress overall" (Christie, 1997, p. 52). Christie argues "Because of the high level of stress in EMT work, EMTs must adjust the stress in other areas of their lives in order to attain their optimal levels of performance" (Christie, 1997, p. 52).

Christie also presents ideas for stress reduction strategies that begin with identifying individual stressors and symptoms of stress related or driven problems. She then describes a ten point program for stress reduction, that among other things recommends the establishment of clear boundaries between work and home; providing an outlet for residual feelings after a days work; planning and taking regular vacations; finding outside activities that are unrelated to the job; and, reevaluating your current position.

Carter and Christie contributed to this research by advocating for effective stress relief through distinctive separation of a person's life components. By separating one part of life from the others, the person will hopefully be able to more effectively manage the cumulative effects of stress, and, ultimately balance that stress more effectively. The key in both instances, however, is learning which techniques are effective and then practicing and mastering them. Both writers were also influential because they presented the concept of stress management and coping from an individual rather than an organizational perspective. In other words, personnel in the fire

service must perform introspective reflection and attempt to identify and manage the stress in their own lives, regardless of the stress management policies or programs of their fire department. Carter emphasized this idea, relating stress management directly to self-motivation.

Brigati (1995) wrote that education is the key to effective stress management. "By learning and identifying our stressors we gain the advantage in dealing with them effectively and limiting their negative aspects" (Brigati, 1995, p. 35). Brigati also offers that "Through an understanding of stress related situations and resulting physical and emotional changes we can then develop "common sense and inexpensive solutions which are both practical and realistic" (Brigati, 1995, p. 36). Among the simple techniques he presents are:

- Teaching members proper and realistic goal setting

- Engaging in diversionary or pressure releasing techniques such as after hours hobbies or attending conventions or educational seminars

- Teaching firefighters self pacing and progressive muscle relaxation techniques

- Development of an aerobic exercise program

- Continuing education in the form of educational opportunities on nutrition, diet, smoking, crises management, etc. (Brigati, 1995, p. 36).

Brigati influenced this research by providing a simple proactive plan for stress management that is useful and realistic, and, can be implemented, operated and maintained by firefighters (Brigati, 1995, p. 34).

A year earlier in 1994, Potter wrote, "The problems associated with stress must be met head-on. We must convince our personnel that their health, their families, and their job performance will be greatly enhanced once they learn to effectively deal with stress" (Potter,

1994, p. 17). He recommends a multi-faceted program to deal with stress including making the firefighters work environment as pleasing as possible in order to provide motivation. In addition, Potter advocates allowing participation in the department's decision making process, providing stress education and training including such related topics as nutrition and diet, maintaining open lines of communication, showing appreciation to your personnel, forming a Critical Incident Stress Debriefing Team, implementing a fitness and wellness program, and, insuring that professional help is available, if needed (Potter, 1994, p. 17). He concludes with the opinion that the most important facet of any stress management program is "know your people and what their needs are" (Potter, 1994, p. 17).

Potter influenced this research by advocating a head-on approach to stress management while acknowledging that getting buy-in from firefighters may be a difficult proposition. Implementing an effective and comprehensive stress management program will require a concerted marketing effort by the fire department leadership. Potter was also influential by virtue of his recognition that stress affects different people in very different ways and may manifest itself in a wide variety of maladies. His advice about knowing your people so you know what their needs are reinforces the notion that different personnel will require different techniques to manage and cope with their stress.

In 1991, Fishkin wrote on Firefighter Stress: New Approaches for Effective Coping as part of a series he authored on stress in the fire service. He provided a detailed description of a stress management program categorized into various treatment or intervention approaches. The first category involves self-directed approaches for coping with stress. These techniques require the firefighter to make an assessment of his/her life, and, consequently make adjustments, as necessary. These self-directed approaches include:

- Developing an awareness of the problem. This is the
  vital first step in problem resolution.

- Stress monitoring to track your "internal thermostat"
  and increase your level of self awareness.

- Communicate your emotional pain with a significant other.

- Objectively look at your attitude toward the "stressor" –
  Evaluate your payoffs for maintaining that attitude.

- Lower self expectations so that they are in line with reality.

- Examine the personal myths under which you are operating –
  Get rid of the excess psychological baggage.

- Integrate areas of gray into your thinking.

- Improve your attitude toward personal physical health.

  (Fishkin, 1991b, p. 28-29)

The primary treatment interventions recommended by Fishkin involve individual psychological counseling or psychotherapy (Fishkin, 1991b, p. 32). This strategy can include supportive therapy, relaxation training and hypnosis, assertion training, crises intervention, alcohol and drug counseling and detoxification, and, marital and family counseling (Fishkin, 1991b, p. 32). Other options available include utilization of community based resources of various types, temporary or permanent change of shift or assignment, medical referral for more aggressive treatment, and/or, the use of sick or vacation time or granting of a leave of absence.

Fishkin's writing on coping strategies impacted this research by detailing comprehensive stress coping, reduction and management techniques and options that could provide the basis for any program being implemented by the Vineland Fire Department. His writing also reinforces

the concept that any effective stress management program must be focused and multi-faceted, not just a generic and often underutilized Employee Assistance Program.

Coleman (1995) wrote on what can only be considered a drastic stress reduction technique, especially for senior fire executives - resignation. He writes that while this phenomenon is not well known, fire chiefs have been known to leave an organization because of intolerable working conditions (Coleman, 1995, p. 43). Coleman states, "This has happened and it's very likely to happen again if current levels of job stress continue" (Coleman, 1995, p. 43).

Coleman was influential on this research because the author of this paper can relate to contemplating this solution as a remedy for the stress caused by deplorable working conditions. It also raises the question, that even with a comprehensive stress management program in place, would the working conditions implied by Coleman, render the benefits of such a program meaningless, leaving the chief or other senior executive with only one viable option to relieve his/her stress?

In conclusion, the literature review revealed that stress, as it relates to firefighters is a complex and multi-faceted problem, one with no quick fixes or easy solutions. However, it did bring several key issues into focus. First, stress manifests itself in different ways to different people. In other words, stress may present itself as uniquely as the person that it is affecting. Second, and very importantly, stress is cumulative in nature. This is an important concept because while much has been written on the occupational stress confronted by firefighters, the connection between this stress and, the stress of the rest of their lives is not always emphasized. While certainly not scientific, one could possibly draw the conclusion that the effects of responding to 25 fires with one fatality each could be worse than the stress experienced by responding to one fire with 25 fatalities. Both situations would certainly be impacted by stress

the firefighter is experiencing in their personal life, and, his/her general level of wellness. Finally, the literature clearly indicated that stress management, coping and reduction are also multi-faceted, must be comprehensive yet flexible, and, in most cases, must begin with the individual who is struggling with the stress in their life. However, it is imperative that fire service leaders confront the stress problem directly and take proactive steps to reduce stress through development of programs for their personnel, and, attempting to identify and eliminate sources of organizational stress.

PROCEDURES

The research process utilized in the preparation of this Applied Research Project began with a comprehensive literature review to determine what had already been written on the subject of stress as it relates to firefighters. The research involved reviewing various fire service and mental health textbooks, fire service and mental health trade journals and magazines, applied research projects on related topics, and, other pertinent sources of information. The literature review commenced at the Learning Resource Center (LRC) at the National Emergency Training Center (NETC) in March 2002. Additional material was obtained from the LRC through the United States Postal Service in July 2002. A second research visit to the LRC on the NETC campus was made in October 2002. The web sites of the National Fire Academy and the LRC were also consulted for information several times in July, August and September 2002. Additional literature reviews were conducted at the Vineland Public Library, the Vineland Fire Department, the author's, and, the author's father's personal libraries between June and September 2002.

Background information on the legal establishment of the city and the fire department had been obtained in May 1998, from Anne Marie Barsotti, Deputy City Clerk, City of Vineland, in conjunction with a previous educational endeavor.

John W. Carr, retired Captain, Vineland Fire Department, and, the unofficial department historian, provided background information on the city, and, the fire department, in July 1999, while the author was writing his first Applied Research Project.

Dr. Peter J. Finley, the author's father who is a retired psychologist/ educator, as well as, a retired colonel in the United States Marine Corps., was interacted with numerous times during the spring, summer and fall of 2002. During these interactions a tremendous amount of information was exchanged with regard to stress and stress management, as they related in general to daily life, and, specifically to the fire service. Dr. Finley's extensive experience and expertise in stress management includes more than 15 years of program development, training and administration, including screening and evaluating Marines assigned to the United States Embassy Guard Battalion and Presidential Support Program.

Deputy Chief Gene Sawyer of the Santa Clara, California Fire Department was interviewed by phone on October 10, 2002 while conducting the "Fire Department Stress Management Survey". He provided additional perspectives on the research subject, beyond what was solicited for the survey.

Two survey instruments were utilized to gather information from two different subject groups. The first instrument titled "Fire Department Stress Management Survey" was developed to gather information from other combination fire departments on whether they felt that "everyday" job and/or life related stress was a problem in their department, whether the problem was more severe in career or volunteer personnel, whether they had lost any personnel to stress

related circumstances, and, whether they had, or, were planning to implement a stress management program (see Appendix A).

The original research methodology that was to be employed was to randomly select five combination fire departments from each state, provided that the department served a population of at least 10,000 people. The minimum population of 10,000 residents was selected because it was felt that departments that served communities smaller than this may not experience the same conditions and circumstances that personnel in larger communities would. The National Directory of Fire Chiefs and EMS Administrators was consulted to obtain the names of fire departments which met the research criterion. The web site of the Fire and EMS Network was consulted to cross reference the selected departments and to attempt to obtain their e-mail address. These departments would then be sent the survey via e-mail attachment. It was hoped that this methodology would produce a higher percentage of survey returns.

However, once this process was started, it quickly became apparent that it would not be successful. It proved very difficult and time consuming to locate e-mail addresses for fire departments on the Fire and EMS Network. In many cases, the address listed did not go directly to the fire department, but to a web site administrator. A test run sending the surveys to 12 departments via e-mail resulted in six e-mails being returned as undeliverable, one went to an administrator, and, no reply was ever received from the remaining five.

Due to the time constraints present, it was decided that a phone survey would need to be conducted instead. The departments to be surveyed were still randomly selected from the National Directory of Fire Chiefs and EMS Administrators. However, it was decided to reduce the number of departments surveyed in each state to two. Ultimately, a total of 98 surveys were attempted. Only one survey was attempted in Hawaii as only one combination fire department

was listed, and, only one survey was attempted in South Dakota since only one combination fire department was listed which met the minimum population criterion.

Of the 98 surveys that were attempted, 61 (62.2 percent), resulted in a positive contact with the department. Of these, 52 (85.2 percent of departments which resulted in a contact, and, 53.1 percent of total surveys attempted) were evaluated for this research. The nine surveys which were not evaluated (14.8 percent) were excluded because eight departments reported that they were staffed solely by career personnel, and, one department reported it was staffed only by volunteer personnel. Appendix B provides further demographic information about the fire departments whose surveys were evaluated for this research.

The surveys attempted with the remaining 36 departments were unsuccessful for a number of reasons, most prevalent among them that the chief or other person who could respond to such a survey was not available. In several instances, a message was left with the recommended contact for the department explaining the survey and its purpose, and, requesting a return call. However, only one department actually did call back.

During the literature review and generalized research stages of this project, a survey instrument was located which through a 28 question index describing attitudes or feelings, and how often those attitudes or feelings manifested themselves in that individual, determined the relative stress level of the participant. Each of the 28 questions was assigned one point if the participant answered "almost never", two points for a response of "occasionally"; three points for a selection of "frequently"; and, four points if "almost always" was chosen. The total score was determined by adding the point value assigned to each question. Participants were then assigned a stress rating of "low stress" if their score was between 1 and 28; "mild stress" for a score

between 29 and 58; "moderate stress" for a score between 59 and 87; and "high stress" if their

score totaled between 88 and 112.

A second ten question list determined the participant's tension level and how well they

are coping with that stress. For this section of the evaluation, each response was assigned 2

points if the respondent reported experiencing the attitude or feeling "often"; and, 1 point if the

participant reported "a few times a week". No points were added if the participant answered a

question "rarely". A total score was determined by adding up the points assigned to each

question, with the maximum possible points being 18. Participants who obtained a score of 11 or

lower were classified as having low tension, and, appeared to be coping adequately with the

stress in their life. A score of 12 or higher indicated that person had a high tension level, and,

was having difficulty coping with the stress in their life.

The origins of this survey instrument are unknown, however, the author's father who has

done extensive work on stress management, verified the validity of the instrument as recognized

and accepted for stress evaluation purposes. The author's research was unable to locate or

identify any copyright restrictions on the instrument that would have limited its use in this

application. In fact, the research located two slightly different versions of the instrument, from

two different sources.

The first part of this instrument was titled "Firefighter Stress Evaluation". The second

section was titled "Firefighter Tension and Stress Coping Ability Evaluation". In addition to the

two sections described above, the instrument had a third section added to it by the author, that

asked for background information on the firefighter completing the survey including their

opinion of the morale level in their department, and, the direction they perceive their department

to be headed (See Appendix C). The instrument was distributed to, and completed by personnel

assigned to Stations 1, 3, 4 and 6 of the Vineland Fire Department, as well as, members of the

Bridgeton, Collingswood and Millville, New Jersey Fire Departments. A total of 115 surveys

were completed and returned. All were evaluated and utilized in the compilation of data for this

research. Appendix D provides background information on the fire department personnel who

completed the survey.

The results of the "Fire Department Stress Management Survey", and, the "Firefighter

Stress Evaluation" / "Firefighter Tension and Stress Coping Ability Evaluation" were entered

into a computerized database program (Microsoft Access), tabulated and analyzed. The results of

the fire department survey were utilized to assist with answering research questions one through

three. The results of the firefighter stress evaluations were utilized to help answer research

questions four through six.

LIMITATIONS

This research project was limited by a number of factors, not the least of which was the

extreme breadth of the subject itself. Narrowing the focus of the study down to a manageable

range, and, keeping within those parameters proved to be a difficult undertaking; one that

required persistent discipline, and, that in and of itself created additional stress for the author.

While there is an abundance of literature available on stress and stress management in the

fire service in general, the author's research was able to locate only a very limited amount of

material that addressed what could be considered the unique concerns of volunteer firefighters.

Looking at the issue of stress from the volunteer's perspective was important to this research,

since the focus of the project was on stress in combination fire departments.

The first survey instrument "Fire Department Stress Management Survey" proved to have

several flaws. First, question #2 asked if the respondent considered stress in their department to

be a "major" problem. While its effect on the data is unknown, in hindsight it may have been better to not place the qualifier of "major" on the question. Several respondents answered this question no, and then qualified their answer by stating that stress was a problem, just not a major one.

Questions #3 and #4 should not have been tied into the response to question #2. They should have been allowed to stand on their own. Making this change would have resulted in the collection of additional data which could have been further analyzed and compared to the data collected in the instrument completed by firefighters associated with combination fire departments.

Question #8 should have included a choice of access to a Critical Incident Stress Debriefing (CISD) team as an option. While the response of any department that stated access to a CISD team was the sole component of a stress management program was recorded as the functional equivalent of a "no" answer, nearly 100% of participating departments stated they had access to such a resource, should they require its services.

For Question #10, a number of departments whose stress management program consisted solely of access to an Employee Assistance Program (EAP) stated they wanted to expand their program because they felt that it would be beneficial to their personnel. In this case, they were recorded as a "yes" answer to Question #10, and, then were asked follow-up Question #11.

Finally, the issues associated with conducting the survey and, the rationale behind reducing the study sample were previously addressed and discussed in the procedures section.

The "Firefighter Stress Evaluation" and "Firefighter Tension and Stress Coping Ability Evaluation" instruments did not have any flaws that were identified. However, these instruments were distributed to a non-random population of firefighters assigned to 4 combination fire

departments located in southern New Jersey. The results, therefore, should not be construed as being statistically representative of the fire service in the United States, the northeast, New Jersey, or, even southern New Jersey.

DEFINITIONS

Stress. Stress is the wide ranging, and often non-specific response of the body, either mentally or physically, to any demand that is placed upon it. Stress can be either positive stress, known as eustress, or, negative stress which is referred to as distress.

Stressor. Any event or situation, whether positive or negative, which causes you to adapt. This adaptation, which is stress, can be either conscious or unconscious in nature.

Homeostasis. Inherent necessity in human beings for the mind and body to maintain a balance.

Career Firefighter. A firefighter who is employed full-time as a member of a fire department. While being a firefighter may not be their only employment, being a firefighter is their primary occupation.

Volunteer Firefighter. A firefighter who is not employed full time as a member of the fire department, and, who generally engages in some other occupation as their primary employment. For the purpose of this study, volunteer firefighters may include true volunteer firefighters who receive no compensation for their services; volunteer firefighters who receive stipends such as a clothing allowance, or, some type of retirement, tax, educational incentive, etc.; and, paid on call firefighters who receive limited compensation for each incident they respond to, training class they participate in, etc.

RESULTS

1. **How many combination fire departments consider "everyday" job and/or life related stress to be a major problem?**

The results of the "Fire Department Stress Management Survey" showed that 19 of the 52 fire departments surveyed (36.5 percent), reported that they felt "everyday" job and/or life related stress was a major problem in their department. Of those departments, 18 (94.7 percent) feel that there is a difference in stress levels between career and volunteer personnel, while only 1 department (5.3 percent) felt that the stress levels are equal. Of the 18 respondents who answered that there is a difference in stress levels, 16 (88.9 percent) stated that stress levels were greater for career personnel. Two fire departments (11.1 percent) stated that stress levels were more significant for their volunteer personnel.

The remaining 33 fire departments (63.5 percent) replied that they do not feel that "everyday" job and/or life related stress is a major problem in their department. However, a number of respondents did qualify their answer by stating that they felt stress in their personnel was a problem; they just were not sure how serious the problem was. Table 1 illustrates the data discussed above.

Table 1

Fire Department Responses on Overall Stress Problem

Departments surveyed who consider "everyday" job and/or life related stress to be a major problem in their department	19
Departments surveyed who feel that there is a difference in stress levels between career and volunteer personnel	18
Departments surveyed who feel that stress levels are greater in career personnel	16
Departments surveyed who feel that stress levels are greater in volunteer personnel	2
Departments surveyed who feel that there is no difference in stress levels between career and volunteer personnel	1
Departments surveyed who do not consider "everyday" job and/or life related stress to be a major problem in their department	33

2. How many combination fire departments have a stress management program in place?

Of the 52 fire departments who were surveyed, 42 (80.8 percent) responded that they had some type of stress management program in place. Only 10 departments (19.2 percent) reported that they did not have any type of program available to their personnel. Twelve of the departments which have a stress management program in place (28.6 percent) include it as part of a comprehensive firefighter wellness program, while the remaining 30 departments (71.4 percent) do not.

Access to an Employee Assistance Program (EAP) provides the foundation for the stress management program in the overwhelming majority of departments who answered the survey, with 41 of 42 respondents (97.6 percent) listing this as part of their program. In 17 departments

(40.5 percent), access to an EAP was the sole resource available. The remaining 25 departments

(59.5 percent) answered that their stress management program contained additional components.

Of those departments, 20 (80 percent) provide stress management for their personnel, 14 (56

percent) have supervisors utilize a behavioral indicators evaluation, 3 (12 percent) perform an

evaluation as part of routine medical screenings, and, 12 (48 percent) reported some other

component to their program such as access to a chaplain, participation in a physical fitness

program, etc. No departments reported periodic evaluations of their personnel by a psychologist

or other mental health professional. Table 2 provides details on fire department responses

regarding their stress management program.

Table 2

Fire Department Stress Management Programs

Departments surveyed who have a stress management program in place	42
Departments surveyed who have a stress management program in place and include the following as components of the program:	
Stress management training for personnel	20
Behavioral indicators evaluations by supervisors	14
Periodic evaluation by a psychologist	0
Periodic evaluation by other mental health professional	0
Evaluation during routine medical screening	3
Access to an Employee Assistance Program	41
Other	12
Departments surveyed who have a stress management program in place and include it as part of a comprehensive firefighter wellness program	12
Departments surveyed who have a stress management program in place but do not include it as part of a comprehensive firefighter wellness program	30
Departments surveyed who do not have a stress management program in place	10

Departments which did not have a stress management program in place at all, or, those that stated they had access only to an EAP were asked a follow-up question regarding whether they felt that a program (for those with no program), or, an expanded program (for those with EAP access only) would be beneficial to their department. Of the 24 fire departments that responded, 19 (79.2 percent) responded in the affirmative. Surprisingly, five departments (20.8 percent) answered that they did not think a program would be beneficial. All five were departments that did not have any type of program currently in place.

Only 4 of the 24 departments, (16.7 percent) plan to implement a program in the foreseeable future. Nineteen respondents (79.2 percent) reported no plans to implement a program (this includes the five departments which did not feel that a program would be beneficial). One department (4.2 percent) did not provide an answer to the question. Stress management program benefit and implementation responses are illustrated in Table 3.

Table 3

Stress Management Program Benefit and Implementation Responses

Departments surveyed who do not have a stress management program in place but feel that having one would be beneficial to their department and personnel		19
	Departments surveyed who feel that a stress management program would be beneficial and who plan to implement a stress management program	4
	Departments surveyed who do not have a stress management plan in place and who do not plan to implement a stress management program	19
Departments surveyed who do not have a stress management program in place and do not feel that having one would be beneficial to their department and personnel		5

3. How many combination fire departments have lost personnel due to stress related retirements, resignations, disabilities, etc.?

The majority of departments, 38 of 52 (73.1 percent), reported that they had no documented stress related losses within the last 5 years. However, it is important to note that many of the respondents qualified their response by stating that stress may have been an underlying cause of additional losses, which for varied reasons, may not have been documented as such. Fourteen departments (26.9 percent) reported at least one stress related loss within the past five years. Departments could provide multiple responses to this question based upon their loss experience. Table 4 provides a breakdown of stress related losses by category.

Table 4

Fire Department Experiences with Stress Related Losses

Departments surveyed who have lost personnel in the past five (5) years due to:	
Stress related retirement	10
Stress related resignation	9
Stress related long term disability	2
Stress related short term disability	3
Stress related death	3
No stress related losses documented	38

As illustrated in Table 5, documented stress related losses were more prevalent among career personnel than volunteers. Of the 14 departments who reported losses, 11 (78.6 percent), stated the losses were greater for career personnel, while 3 (21.4 percent) reported higher volunteer losses.

Table 5

Stress Related Losses by Status

Departments surveyed who reported stress related losses were greater for career personnel	11
Departments surveyed who reported stress related losses were greater for volunteer personnel	3

4. What is the relative stress level, of personnel in combination fire departments, as determined by use of an evaluation instrument?

Of the 115 "Firefighter Stress Evaluation" and "Firefighter Tension and Stress Coping Ability Evaluation" surveys completed, 81 (70.4 percent) indicated that the respondent was experiencing mild stress, 33 (28.7 percent) showed a moderate stress level, and, 1 (0.9 percent) reported high stress (see Table 6). None of the personnel who completed the survey were found to be in a low stress state.

Table 6

Stress Levels of Overall Firefighter Population Evaluated

Stress levels of firefighters surveyed:	
Low	0
Mild	81
Moderate	33
High	1

As shown in Table 7, the survey also indicated that the vast majority of firefighters in this study (108 of 115, or, 93.9 percent) had a low tension level and were not having any serious

problems coping with their stress. The remaining seven participants (6.1 percent) were

determined to have high tension and were having difficulty coping with the stress in their life.

Table 7

Tension Level / Coping Ability of Firefighters Surveyed	
Low tension and ease in coping with stress	108
High tension and difficulty in coping with stress	7

Table 8 provides a comparison between stress level and tension level/coping ability of the

study participants. All seven of the personnel who were experiencing high tension and difficulty

with coping were classified as experiencing moderate stress. The seven personnel experiencing

high tension and difficulty coping represent 21.2 percent of the personnel classified as

experiencing moderate stress, and, 6.1 percent of the total survey group. Surprisingly, the one

high stress study participant was mid range on the low tension/high coping side of that scale.

Table 8

Stress Level Versus Tension Level/Coping Ability of

Overall Firefighter Population Evaluated

		COPING ABILITY / TENSION LEVEL	
		Low tension / High Coping	High Tension/ Low Coping
STRESS	Low Stress	0	0
	Mild Stress	81	0
	Moderate Stress	26	7
	High Stress	1	0

5. Is there a difference in stress levels between career and volunteer firefighters in combination fire departments?

According to the results of the surveys, there is virtually no statistical difference between stress levels found in career and volunteer firefighters. As Table 9 illustrates, 33 of 46 career firefighters studied (71.7 percent) were experiencing mild stress, while 13 (28.3 percent) were dealing with moderate stress. No career firefighters in this study were classified as either low or high stress.

Table 9

Stress Levels of Career Firefighters Evaluated

Stress level of career firefighters surveyed:	
Low	0
Mild	33
Moderate	13
High	0

Of the volunteer firefighters studied, 48 of 69 subjects (69.6 percent) were classified as mild stress, 20 (29.0 percent) were identified as moderate stress, and, 1 (1.4 percent) was suffering from high stress (see Table 10). No volunteer firefighters were classified as low stress. The difference in the volunteer firefighter's statistics, as compared to the career firefighters, is - 2.1 % at the mild stress level, + 0.7 % at the moderate stress level, and, + 1.4 % at the high stress level.

Table 10

Stress Levels of Volunteer Firefighters Evaluated

Stress level of volunteer firefighters surveyed:	
Low	0
Mild	48
Moderate	20
High	1

Tables 11 and 12 show the comparison between career and volunteer stress levels in comparison to tension level and coping ability. Once again the groups are statistically very close, with 3 of 13 career firefighters (23.1 percent) at the moderate stress level experiencing high tension and difficulty coping, compared with 4 of 20 volunteer firefighters (20.0 percent).

Table 11

Comparison of Career Firefighter Stress Levels versus Tension Level/Coping Ability

		COPING ABILITY / TENSION LEVEL	
		Low tension / High Coping	High Tension/ Low Coping
STRESS	Low Stress	0	0
	Mild Stress	33	0
	Moderate Stress	10	3
	High Stress	0	0

Table 12

Comparison of Volunteer Firefighter Stress Levels versus Tension Level/Coping Ability

		COPING ABILITY / TENSION LEVEL	
		Low tension / High Coping	High Tension/ Low Coping
	Low Stress	0	0
	Mild Stress	48	0
STRESS	Moderate Stress	16	4
	High Stress	1	0

6. **Are stress levels of fire department personnel affected by their perception of conditions and morale within their department, or, on the direction they perceive their department to be headed?**

Based upon the results of this study, it does appear that the participant's perception of morale within their department, or, the direction they perceive their department to be headed, has an impact on the stress levels of both career and volunteer personnel. In both cases the statistical range between personnel experiencing mild and moderate stress narrowed considerably as morale faded from excellent to poor.

For career firefighters, all three of the personnel who viewed morale in their department as excellent were experiencing mild stress (100 percent). Of the 15 personnel who reported morale was good in their department, 14 (93.3 percent) were experiencing mild stress while just 1 (6.7 percent), was experiencing moderate stress. When morale was reported as fair, 9 of 15 respondents (60.0 percent) were classified with mild stress and 6 (40.0 percent) had moderate stress. When morale was considered to be poor, 7 personnel out of 13 (53.8 percent) were

dealing with mild stress, and, 6 (46.2 percent) were dealing with moderate stress. Table 13 illustrates this breakdown.

Table 13

Comparison of Career Firefighter Morale Perception versus Stress Level

		MORALE			
		Excellent	Good	Fair	Poor
STRESS	Low Stress	0	0	0	0
	Mild Stress	3	14	9	7
	Moderate Stress	0	1	6	6
	High Stress	0	0	0	0

As detailed in Table 14, 5 of 6 volunteer firefighters who reported moral was excellent in their department (83.3 percent), had mild stress, while just 1 (16.7 percent) reported moderate stress. When morale was perceived to be good, 23 of 29 respondents (79.3 percent) were classified as mild stress, 5 (17.2 percent) were dealing with moderate stress, and, 1 (3.5 percent) was suffering from high stress. For those who felt that morale in their department was only fair, 15 firefighters (71.4 percent) were classified with mild stress, and, 6 (28.6 percent) with moderate stress. Of the 11 participants who perceived their department's morale as poor, 5 (45.5 percent) reported mild stress, while 6 (54.5 percent) reported moderate stress.

Table 14

Comparison of Volunteer Firefighter Moral Perception versus Stress Level

		MORALE			
		Excellent	Good	Fair	Poor
	Low Stress	0	0	0	0
	Mild Stress	5	23	15	5
STRESS	Moderate Stress	1	5	6	6
	High Stress	0	1	0	0

As previously noted, the survey also explored the idea of whether the direction personnel perceive their department to be headed has any effect on their level of stress. Once again, the data and statistics generated from this study appear to indicate that it does.

A total of 21 career firefighters reported that they felt their department was headed in the right direction. Of those, 18 (85.7 percent) were classified as mild stress, while 3 (14.3 percent) had moderate stress. When personnel perceived their department as maintaining the status quo, 6 (66.7 percent) reported mild stress, and, 3 (33.3 percent) presented with moderate stress. When their department was classified as heading in the wrong direction, 9 of 16 personnel (56.3 percent) had mild stress. The remaining 7 (43.7 percent) received a moderate stress score. Table 15 provides these details.

Table 15

Comparison of Career Firefighter Perception on Department Direction versus Stress Level

| | DEPARTMENT DIRECTION | | |
	Improving / Right Direction	Status Quo	Deteriorating / Wrong Direction
STRESS Low Stress	0	0	0
Mild Stress	18	6	9
Moderate Stress	3	3	7
High Stress	0	0	0

For volunteer firefighter participants, the data also appears to illustrate an increase in stress as perception about department direction diminishes. Twenty-three volunteer firefighters perceived their department as being headed in the right direction. Of those, 19 (82.6 percent) were scored as mild stress, and, four (17.4 percent) had moderate stress. A total of 30 firefighters reported their department was maintaining the status quo. Twenty of those (66.7 percent) were classified as mild stress, nine (30.0 percent) reported moderate stress, and, one (3.3 percent) was dealing with high stress. For those who reported their department was headed in the wrong direction, nine of fourteen (64.3 percent) were mild stress, while five (35.7 percent) experienced moderate stress. Table 16 illustrates these figures.

Table 16

Comparison of Volunteer Firefighter Perception

on Department Direction versus Stress Level

	DEPARTMENT DIRECTION		
	Improving / Right Direction	Status Quo	Deteriorating / Wrong Direction
Low Stress	0	0	0
Mild Stress	19	20	9
Moderate Stress	4	9	5
High Stress	0	1	0

STRESS

Study participants were also asked specifically if they felt that the morale in their department and/or the direction they perceive their department to be headed affects their level of stress. A total of 46 career personnel answered this question, 36 (78.3 percent) affirmatively, and, 10 (21.7 percent) provided a negative response. Sixty-seven volunteer personnel also answered. Twenty-five (37.3 percent) answered yes, while 42 (62.7 percent) answered no.

Of the 36 career firefighters who answered in the affirmative, 24 (66.7 percent) were classified with mild stress, while 12 (33.3 percent) were classified as moderate stress. Ten career firefighters did not feel that their perception affected their stress level. Of those, 9 (90.0 percent) reported mild stress, and, 1 (10.0 percent) dealt with moderate stress (see Table 17).

Table 17

Career Firefighter Responses on Personal Perception of

Morale/Department Direction Affecting Stress Level

		AFFECTS STRESS LEVEL	
		YES	NO
STRESS	Low Stress	0	0
	Mild Stress	24	9
	Moderate Stress	12	1
	High Stress	0	0

For volunteer firefighters, 17 of 25 (68.0 percent) who felt that their personal perception on morale and/or department direction affected their stress level had mild stress. The remaining 8 (32.0 percent) were classified as moderate stress. A total of 42 participants reported that they did not feel that these issues affected their level of stress. Of those, 31 (73.8 percent) reported mild stress, an additional 10 (23.8 percent) were scored with moderate stress, and, 1 (2.4 percent) was classified as high stress. Table 18 provides the details.

Table 18

Volunteer Firefighter Responses on Personal Perception of

Morale/Department Direction Affecting Stress Level

		AFFECTS STRESS LEVEL	
		YES	NO
	Low Stress	0	0
	Mild Stress	17	31
STRESS	Moderate Stress	8	10
	High Stress	0	1

7. What are the components of an effective stress management program?

A number of author's whose works were reviewed during this research suggest that a fire department stress management program must actually begin prior to appointment of the individual to the department. This pre-appointment screening would normally involve adding a psychological evaluation to the selection process. A typical psychological screening instrument could include a standardized personality assessment such as the Minnesota Multiphasic Personality Inventory (MMPI) (Smelson, 1979/1986). Carlisle (1999), Todd (2001), and Caton (2001) all advocate the inclusion of psychological testing as a valid method of determining an individual's occupational suitability (Todd, 2001, p. 43) and their ability to withstand job related stressors (IAFF, 1998, as cited in Caton 2001).

Any on-going stress management program that is going to be fully effective should be part of a comprehensive firefighter wellness program (P. Finley, personal communication, September 4, 2002). The program should, as a minimum, include a physical fitness program,

nutrition and dietary information and management, and, mental health services, of which stress

management is a component (P. Finley, personal communication, September 4, 2002).

To realize its full potential, a stress management program must include training for all

personnel that is on-going in nature (P. Finley, personal communication, September 4, 2002). It

can not be a one time presentation that is quickly forgotten. Stress management training must be

given a permanent place in the department's training schedule, with sessions presented on at

least a quarterly basis (P. Finley, personal communication, September 4, 2002). Provisions must

be made to insure that any newly appointed probationary firefighters receive the entire training

program, not just fitting them into the schedule whenever they are assigned to the line (P. Finley,

personal communication, September 4, 2002).

In order to keep the interest of program participants, the syllabus should include both

didactic and participatory sessions (P. Finley, personal communication, September 4, 2002).

Topics that should be covered include, but are not necessarily limited to:

- Definition of stress

- Facts and fiction about stress

- Data on incidence of stress related problems

- Explanation of Homeostasis

- How stress effects the recipient

- The vulnerable system, i.e.: circulatory (cardiac problems, high

  blood pressure, etc.), gastrointestinal (ulcers, irritable bowel, etc.),

  etc.

- What are stressors?

- Breaking the stress cycle

- Presentation of stress management techniques.

- "Pick your pudding" of stress reduction techniques such as meditation, imaging, hobbies, etc (P. Finley, personal communication, September 4, 2002).

It is imperative to emphasize during the presentation of stress management techniques that effective stress management requires a change in lifestyle and/or behavior (P. Finley, personal communication, September 4, 2002). It must likewise be emphasized that stress reduction techniques can not have an end goal as such (P. Finley, personal communication, September 4, 2002). In other words, if a firefighter picks running as a stress relief outlet, he/she should run just for the therapeutic value, not to improve his/her time for an annual physical fitness evaluation or for the 5K race they are running in the following month (P. Finley, personal communication, September 4, 2002). The majority of the training should be conducted by a competent, trained professional, preferably a psychologist (P. Finley, personal communication, September 4, 2002).

An effective stress management program must also include an on-going evaluation of participant progress (P. Finley, personal communication, September 4, 2002). This will allow program effectiveness to be assessed. However, more importantly, it will allow personnel whose stress levels remain high and/or are having difficulty coping with their stress to receive more intensive individual and/or specialized counseling or therapy (P. Finley, personal communication, September 4, 2002). Ferguson and Gerspach (1984) advocate the use of "…"attitude indicators and scales such as the Holmes and Rahe "Social Readjustment Rating Scale to assess potential situations and to take preventative measures…" (Ferguson and Gerspach, 1984/1986).

The program must include provisions for critical incident stress debriefings, or, in extreme cases, a critical incident stress defusing (P. Finley, personal communication, September 4, 2002).

Finally, there are several other important issues that must be considered when attempting to develop an effective stress management program. First, the organization needs to develop an atmosphere of mutual respect, trust and understanding in order to set the stage for referral to a mental health professional (Arkin, 1977/1986). Also, the program can not focus just on the firefighter. Provisions should be made to include firefighter's families/significant others in the educational program (Todd, 2001, p. 43). Finally, consideration should be given to including a peer support component to the program (Caton, 2001, p. 24).

DISCUSSION

The issue of stress in the fire service has been widely discussed over the past 20 to 25 years. Not surprisingly, this discussion closely parallels the significant increase in the general interest in stress, and, its effects on the human body. This increased awareness of stress has probably been driven by an augmented understanding of the wide ranging manifestations of stress, and, consequently the tremendous price it can extract from all aspects of life. As discussed earlier, with up to 90% of all visits to physicians possibly connected to stress in some way (American Psychological Association, 1997 as cited in Todd, 2001), it is imperative that we, as firefighters and human beings, have an understanding of stress, and, its effects on our body, and our mind. It is also vitally important that we take proactive steps to control and reduce our stress, and, learn how to better cope with the stress from which we can not escape.

Human beings have an inherent necessity to maintain a balance between the mind and the body (P. Finley, personal communication, July 29, 2002). This state of balance is referred to as

homeostasis, and is identified and evaluated through the body's vital signs such as heart rate,

blood pressure and body temperature all remaining within normal limits (P. Finley, personal

communication, July 29, 2002). Any change in the homeostatic balance ignites arousal states that

alert the individual of impending change, generally a danger of some type.

It is hypothesized that early humans had limited options when confronted with danger.

They had to prepare to defend themselves against that danger, or, flee. These two options

eventually resulted in recognition of the existence of the fight or flight syndrome. However, as

the complexities of life in the modern world increased, the human was presented with more

options than fighting or fleeing. Not only did the number of options increase, the intensity of

those options did likewise. These options have become our stressors, and, as noted earlier, could

be positive or negative.

Long before "stress" became a "buzz" word, a prominent psychologist by the name of

Hans Selye began to study the effects of what he referred to as stress, on the physical and mental

health of humans. In his classic work, "The Stress of Life" published in 1956, and, a subsequent

book, "Stress Without Distress" published in 1974, he presented a model that described a

person's response to the hundreds of stressors confronting him/her daily, whether those stressors

were positive or negative. Selye was also the first person to present a definitive correlation

between the accumulated effects of stress and the various human body systems, i.e.

gastrointestinal, cardiovascular, etc. He titled his model the "General Adaptation Syndrome".

In the General Adaptation Syndrome, also known as the "Biological Stress Syndrome",

the body experiences three distinct phases of adjustment. During the first stage, the alarm phase,

the mind recognizes the danger, or stressor, and warns the body to prepare defend itself or flee

(Selye, 1974, p. 27). During the second stage, the resistance phase, the body attempts to adapt to

the stressor (Selye, 1974, p. 27) and tries to reestablish the homeostatic balance (P. Finley, personal communication, July 29, 2002). In the final stage, the exhaustion phase, the body is physically unable to continue to adapt, the alarm phase signs reappear, and, in severe cases death can result (Selye, 1974, p. 27).

With some minor variations, most psychologists subscribe to Selye's thinking on the issue (P. Finley, personal communication, July 29, 2002). It is now almost universally accepted that stress is a part of everyone's daily life. Problems arise, however, when the individual's total life experiences present him/her with sufficient stress to threaten the health of that person.

Because of the nature of one's life experiences, including work, some people simply through those circumstances are placed under more stress than others. Firefighting has been offered as a case in point. In 1991, Fishkin noted:

> Stress related claims among firefighters and police personnel have increased significantly within the past several years. These claims are now five times greater than disability claims in the private sector.
>
> The rapidly increasing number of occupational stress claims among firefighters attests to the fact that occupational stress injuries are just as valid as physical injuries. Both injuries handicap an employee from effective job performance. In reality, the *normal* working conditions of firefighters are unusual or extraordinary at best (Fishkin 1991a, p. 16).

Fishkin also states:

> Firefighter stress, in the many cases I've evaluated, falls within

the Worker's Compensation definition of "Presumptive Disorder."

By definition, presumptive disorders are occupationally related

illnesses or disabilities that are presumed effects of the job and

may not be visible on x-ray or validated by any other objective

methods typically used for assessing physical injury or disability.

The presumption of psychological injury further specifies that the

 disabling condition either manifests itself or develops during

employment (Fishkin, 1991a, p. 19).

Dowling (1991) wrote that high absenteeism, chronic burnout, and a high turnover rate

were seriously effecting operations in his 20 member department. Research that was conducted

within the department indicated that stress was a significant contributing factor in all of these

problems. Todd (2001) found that stress and emotional problems accounted for more than 43%

of all cases handled by the California Department of Forestry Employee Assistance Program

(Todd, 2001, p. 14). These problems were the number one reason for access to the program.

Todd also reported that in 2000, 20 of 21 substance abuse cases in her department were related to

cumulative stress (Todd, 2001, p. 15).

This study examined stress from a different perspective, that is firefighters who are

members of combination fire departments. Despite the large amount of information that has been

written on stress in the fire service, and, occupational stress as it relates to firefighters, the

surveys that were conducted in conjunction with this research yielded some interesting results.

Only 19 of the 52 persons (36.5 percent) who responded to the "Fire Department Stress

Management Survey" felt that "everyday" job and/or life related stress was a major problem in

their department (see Table 1). Although the remaining 33 respondents (63.5 percent) answered

that stress was not a major problem, many qualified their answer by stating that they felt that

stress was a problem. However, most stated they were just not sure how serious that problem

was. The figures on stress related losses in the past five years, in these departments, could also,

on first impression, lead one to conclude that stress is not that serious of a problem. Only 14

(26.9 percent) of the departments that responded to the survey reported having suffered any type

of a stress related loss (see Table 4). As also illustrated in Table 4, a total of just 27 losses were

reported.

It is important to note, however, that the effects of stress can manifest itself in many

different ways, depending upon the individual. These manifestations may not always show a

clearly visible connection to stress. As Beech, Burns and Sheffield (1982) note, stress related

diseases and conditions cover a wide spectrum of ailments ranging from coronary artery disease

to ulcers and ulcerative colitis to asthma (Beech et al., 1982, p. 13). Often an illness that causes a

firefighter to lose productive time from the station will not be even remotely considered to be

associated with stress that he/she is experiencing. Yet, there may be an underlying connection.

Even with illnesses commonly associated with stress, such as cardiac related problems, it is

difficult to assess or assign an accurate percentage of stress related blame. Beech et al. write, "It

is difficult to determine the precise relationship of stress to the incidence of coronary heart

disease because of the many confounding variables but there seems little doubt that stress is a

very important contributor" (Beech et al., 1982, p. 13).

Beech et al. caution, however, that:

It needs to be borne in mind that many of these diseases

are multi-determined. Although the role of stress can not

be overemphasized in their aetiology and maintenance, other

factors are also of significance; these factors include

genetic predispositions, excessive smoking, overuse of drugs,

too high an intake of alcohol, lack of exercise and poor nutrition

(Beech, et al., 1982, p. 13-14).

Although many of the stress related diseases have various potential causes and trigger mechanisms, one could draw several conclusions from the initial results of the survey in comparison to Beech and his colleague's writings. First, while most of the fire departments who responded to the "Fire Department Stress Management Survey" did not feel that stress was a major problem in their department, they may have been providing an opinion that was formed without having a true perspective on the extent of the problem within their department. Many sick days lost, various disability claims, etc., may actually be stress related, although to the untrained or unsuspecting observer, there may be no connection. Second, while Beech et al. caution that many other factors play a role in the development of the stress related diseases and ailments, if stress related triggering mechanisms can be reduced or eliminated, one could safely assume that an individual's risk of developing that disease should be reduced. It may also be safe to make an assumption that the incidence of Post Traumatic Stress Disorder (PTSD) would likewise be reduced. Third, several of the other factors that Beech et al. stated must be considered in relation to these diseases, such as over-use of prescription and over the counter drugs, and, too high an intake of alcohol, could be directly related to the stress itself. In fact, use or abuse of these substances may provide a stress coping or release mechanism for the individual, even though most reasonable persons would not consider them to be appropriate. Finally, several other contributing factors that Beech et al. mention, specifically, lack of exercise

and poor nutrition, should be addressed as part of a comprehensive stress management and firefighter wellness program.

Eleven of 14 departments (78.6 percent) which reported stress related losses, reported the losses were greater for career personnel, while three departments (21.4 percent) reported greater volunteer losses (see Table 5). While no definitive conclusion can be drawn from these numbers, it may be possible to draw several inferences on the differences between career and volunteer personnel in this regard. Due to that fact that career firefighters are employees, who have annual allocations of sick leave; would receive disability payments if they are going to be off long term; and, would be required to apply for some type of retirement benefits should they no longer be able to work, stress related statistics for career firefighters are more likely to be tracked than those of volunteer members. Volunteer personnel who are suffering from the effects of stress are more likely to just limit their involvement at the fire department, or, stop showing up, without providing a specific reason. In addition, unless there is a crystal clear connection that would result in some type of compensation payment, occurrences involving disabilities, resignations or retirements of volunteer personnel are less likely to be tracked for statistical purposes.

Many of the factors discussed above, may help to explain the results of the "Firefighter Stress Evaluation" and the "Firefighter Tension and Stress Coping Ability Evaluation" instruments. While not a single firefighter who participated in the study was classified as low stress, the vast majority of those responding (81 of 115, or, 70.4 percent) were identified as having only mild stress (see Table 6). An additional 33 (28.7 percent) showed moderate stress, while only 1 firefighter (0.9 percent) was suffering from high stress (see Table 6). Going one step further, 108 of the 115 (93.9 percent) study participants indicated that they had low tension and were not having difficulty coping with their stress, while just 7 (6.1 percent), were classified

as having high tension and difficulty coping with their stress (see Table 7). All of the personnel who were classified with high tension and difficulty coping with their stress were also classified as experiencing moderate stress (see Table 8).

Surprisingly, these results do not appear to be consistent with the writings of the numerous authors cited in the Literature Review (and many other authors whose writings were reviewed but not cited). However, there does appear to be consistency with the results of the "Fire Department Stress Management Survey". The results also appear to be consistent with a study conducted on 30 Lancaster, Pennsylvania firefighters in the early 1980s. According to Ellsworth and Baer (1981/1986), it found that the firefighters, as a general trait, were less anxious than the normative group of college men (Ellsworth and Baer, 1981/1986).

In addition to possible explanations for these inconsistencies cited previously, it is also possible that the average firefighter who participated in this study, and ultimately completed these instruments, lacks an understanding of the correlation between stress and how he/she feels. Lacking an understanding of this relationship may have had an impact on their perceptions as they answered the various questions in the instruments. Unfortunately, since none of the fire departments which participated in the study provide stress management training to their personnel, this potential lack of understanding about the relationship of stress to physical and mental health, may be an education or training issue; one that could be corrected through implementation of a comprehensive stress management program.

Deputy Chief Gene Sawyer of the Santa Clara, California Fire Department offered an interesting alternative theory as to why the percentage of fire departments reporting that stress was a problem was low. Chief Sawyer's theory may also help to explain the lower than expected scores, obtained from the instruments completed by the firefighters themselves. Chief Sawyer

offered the observation that there is a certain sense of community to fire station life, and, the brotherhood that is forged and exists there. Firefighters, particularly career firefighters who spend up to one third of their lives together, view their brothers and sisters in the department as truly part of their family, or, as a second family. Consequently, contrary to conventional wisdom, the fire station may actually be a place to seek refuge from all of the other stresses that the individual is facing (G. Sawyer, personal communication, October 10, 2002).

In addition to looking at the issue of stress in combination fire departments from a broad overall perspective, one of the objectives of this research was to attempt to determine if there was a difference in stress levels between career and volunteer personnel in those departments. This is an area where the author was able to find very little written information. Virtually nothing has been written on this specific comparison, and, little has been written on the subject of stress as it relates to volunteer firefighters.

The vast majority of fire departments that responded to the "Fire Department Stress Management Survey", and, felt that stress was a major problem in their department (18 of 19, 0r, 94.7 percent), also felt that there was a difference in stress levels between career and volunteer personnel (see Table 1). Of those, 16 (88.9 percent) felt stress levels were greater for career personnel, and, 2 (11.1 percent) felt that volunteer personnel had greater stress (see Table 1). The primary explanations for feeling that the career firefighters experienced higher stress levels than their volunteer counterparts included:

- Shift work keeping them away from home and family

- They must remain at the station regardless of morale level, etc.

- High number of calls to which they must respond

- Inadequate staffing

- Too many additional responsibilities in addition to emergency

  responses

One Chief, who responded that his career personnel had the higher stress level, offered the

opinion that they placed a lot of unnecessary stress on themselves. Unfortunately, he did not

provide any specific examples.

Interestingly, both departments which believed that their volunteer personnel suffered

from greater stress felt that it was because both career and volunteer firefighters do the same job,

yet the volunteer personnel frequently do not receive appropriate recognition. In both cases, the

chiefs also cited poor career - volunteer relations as a reason for their opinion that the volunteers

stress level was higher. The one department that reported that stress levels were equal for career

and volunteer personnel offered the explanation that while both groups experienced stress, both

also understood their unique roles in the department, and, had for the most part adjusted well to

their individual roles and responsibilities.

The "Firefighter Stress Evaluation" found that there was almost no statistical difference

between the stress levels of career and volunteer firefighters. Thirty-three of 46 (71.7 percent)

career firefighters, and, 48 of 69 (69.6 percent) volunteer firefighters were classified as mild

stress, a difference of only 2.1 percent (see Tables 9 and 10). At the moderate stress level, 13

(28.3 percent) career firefighters, and, 20 (29.0 percent) volunteer firefighters met the scoring

criterion, a 0.7 percent differential (see Tables 9 and 10). There was only one participant

classified as high stress (0.9 percent). This firefighter was a volunteer.

The "Firefighter Tension and Stress Coping Ability Evaluation" likewise found that

career and volunteer firefighters were statistically very similar. Of seven total participants

classified as suffering from high tension and difficulty coping with stress, three (42.9 percent)

were career firefighters and four (57.1 percent) were volunteers. As discussed earlier, all of these personnel were classified as having moderate stress. Overall, 23.1 percent of career firefighters with moderate stress (see Table 11), and, 20.0 percent of volunteer personnel similarly classified (see Table 12), were experiencing high tension and difficulty coping.

The fact that the results of this study indicate that career and volunteer firefighters experience very comparable stress levels, and, appear to generally cope with their stress equally well, presents a different picture than was painted by those fire departments who responded to the "Fire Department Stress Management Survey" which found a distinct difference between stress levels in career and volunteer personnel.

All four of the departments whose personnel completed the two stress evaluation instruments are departments whose volunteer personnel outnumber the career staff. All four also have an integrated rank structure, in other words, personnel of various ranks are equal, regardless of status. All four departments, while being moderately active from an emergency response, and, fire work standpoint, are not in a constant overwhelming state of response activity. Only one of the four departments is involved in EMS. All of these factors may have contributed to a leveling of the field, a situation that will vary from department to department, depending upon their current specific circumstances.

The fact, that as a whole, the participants in this study had stress levels that were lower than expected, and the levels of stress were comparable for both career and volunteer personnel may indicate a maturing of attitudes in the fire service toward accepting their feelings on face value. Gerspach (1981/1986) wrote that many emergency workers "view sensitivity as a weakness and tend to deny their feelings" (Gerspach, 1981/1986). However, he argues, "…as times and values change, and men allow themselves to be more sensitive to their feelings, the fire

service will see a decline in stress related problems" (Gerspach, 1981/1986). The results of this study may be indicative of the changes in attitudes that have occurred in the 21 years since Gerspach made his observations. In addition, programs that many of us now take for granted, such as Employee Assistance Programs, and, Critical Incident Stress Debriefing Teams were just in their infancy in the early 1980s. Taken cumulatively, these developments may finally be starting to pay dividends in lower stress levels in the fire service.

In 1991c, Fishkin wrote on how organization factors can have a significant impact on the stress level experienced by members of the fire service. Fiedler, Frost and Swartout (1981/1986) studied stress in Lieutenants and Captains in the Seattle Fire Department. They found, "About 43% of the stress reported by Lieutenants came from interactions with their boss, including direct stress from the boss, working under confusing directives, poor performance feedback, and a frustrated need for autonomy" (Fiedler et al., 1981/1986). In a survey of 153 firefighters from the Toledo, Ohio Fire Division, Navarre (1984) found organizational factors accounting for 7 of the 12 most frequently identified stressors. These organizational stressors include:

- The promotional system of the department

- The courts involved in the operation of the department

- Faulty equipment

- Problems that continue to go on, nothing being done about them

- After a fire, being second guessed by the authorities as to performance at the fire

- Personality conflicts with officers

- Personality conflicts with other firefighters (Navarre, 1984/1986)

It would be fairly safe to make the assumption that organizational factors contribute significantly to the morale within a fire department, and, on the perception of personnel in the department as to the direction that it is headed. One of the purposes of this research was to attempt to determine if the morale level of personnel in the department, and/or, if the direction they perceived their department to be headed, had any impact on the stress levels of the study participants.

The results of the two instruments completed by firefighters tend to suggest that morale and/or perception do have an impact on stress levels. In both career and volunteer firefighters, the statistical range between personnel experiencing mild and moderate stress narrowed significantly as morale faded from excellent to poor. The same held true as department perception changed from headed in the right direction to headed in the wrong direction.

For career firefighters, all three of the personnel who viewed morale in their department as excellent were experiencing mild stress (100 percent). Of the 15 personnel who reported morale was good in their department, 14 (93.3 percent) were experiencing mild stress while just 1 (6.7 percent), was experiencing moderate stress. When morale was reported as fair, 9 of 15 respondents (60.0 percent) were classified with mild stress and 6 (40.0 percent) had moderate stress. When morale was considered to be poor, 7 personnel out of 13 (53.8 percent) were dealing with mild stress, and, 6 (46.2 percent) were dealing with moderate stress (see Table 13).

Five of six volunteer firefighters who reported morale was excellent in their department (83.3 percent), had mild stress, while just one (16.7 percent) reported moderate stress. When morale was perceived to be good, 23 of 29 respondents (79.3 percent) were classified as mild stress, 5 (17.2 percent) were dealing with moderate stress, and, 1 (3.5 percent) was suffering from high stress. For those who felt that morale in their department was only fair, 15 firefighters

(71.4 percent) were classified with mild stress, and, 6 (28.6 percent) with moderate stress. Of the 11 participants who perceived their department's morale as poor, 5 (45.5 percent) reported mild stress, while six (54.5 percent) reported moderate stress (see Table 14).

A total of 21 career firefighters reported that they felt their department was headed in the right direction. Of those, 18 (85.7 percent) were classified as mild stress, while 3 (14.3 percent) had moderate stress. When personnel perceived their department as maintaining the status quo, 6 (66.7 percent) reported mild stress, and, 3 (33.3 percent) presented with moderate stress. When their department was classified as heading in the wrong direction, 9 of 16 personnel (56.3 percent) had mild stress. The remaining 7 (43.7 percent) received a moderate stress score (see Table 15).

Twenty-three volunteer firefighters perceived their department as being headed in the right direction. Of those, 19 (82.6 percent) were scored as mild stress, and, 4 (17.4 percent) had moderate stress. A total of 30 firefighters reported their department was maintaining the status quo. Twenty of those (66.7 percent) were classified as mild stress, 9 (30.0 percent) reported moderate stress, and, 1 (3.3 percent) was dealing with high stress. For those who reported their department was headed in the wrong direction, 9 of 14 (64.3 percent) were mild stress, while 5 (35.7 percent) experienced moderate stress (see Table 16).

While the results of this study would probably not be considered to be conclusive, there are clear implications that morale, and, perceptions regarding department direction can have an impact on the stress levels being experienced by personnel in that department. It is extremely important to note that these two factors are ones that can be addressed at the department level as part of an effort to reduce or eliminate organizational stressors. Addressing sources of

organizational stress will help to reduce stress levels among department members, regardless of other factors that impact upon their overall stress level.

Murdock (1981/1986), Potter (1994), Todd (2001), and Caton (2001) all present various recommendations for addressing organizational stressors as part of a departmental stress reduction and/or management program. Among their recommendation are development of a structured daily schedule that includes time for physical fitness, recreation and free time; clarifying job descriptions to remove ambiguity; providing leadership training for officers; when possible, allowing participation in the decision making process; and, insuring that the lines of communication are kept open throughout the department.

These recommendations should be evaluated as the Vineland Fire Department assesses and analyzes its options for reducing, or if possible eliminating, the organizational stressors that are impacting the members of the Department. A commitment to improving morale, and, turning the Vineland Fire Department around, to head in the right direction will be vital to any effort to address stress within the department. This effort to reduce, or eliminate, organizational stressors will require dedication and commitment from all involved parties, from the Mayor to the newest probationary firefighter. As previously discussed, the Department is at the most important crossroads in its history. Decisions that will be made within the next several months, will, in all probability, significantly impact the Department and its personnel for many years to come. It is even possible, that the process may increase stress in the short term. However, the long term gains that should be realized, in many different aspects of the department, not only stress reduction, should provide justification for the short term costs.

One area where there was a significant difference in the statistics for career and volunteer firefighters was when personnel were asked if they felt their own perception of morale and/or the

direction their department was headed affected their level of stress. A total of 46 career personnel answered this question, 36 (78.3 percent) affirmatively, and, 10 (21.7 percent) provided a negative response (see Table 17). Sixty-seven volunteer personnel also answered the question. Twenty-five (37.3 percent) answered yes, while 42 (62.7 percent) answered no (see Table 18).

The conclusion that can be drawn from the difference in these results is that the perception of career personnel is going to be different from their volunteer counterparts because the fire department provides their primary livelihood. Being a firefighter pays the mortgage, puts their children through school, and, provides health benefits and a pension. No matter how bad morale gets, or, how wrong the direction they perceive their department to be headed, they must still report to work and try to make the best of what may be a very difficult situation.

Conversely, volunteer firefighters usually do not have these same concerns. If they do not like the way things are going in their department, they are not obligated to respond to calls, or, go to the fire station. Their family does not depend on their fire department participation to survive. In addition, volunteer personnel can often resign from one fire department and quickly join a department in a neighboring town that they perceive as being a better organization. This option is usually not available to career firefighters due to civil service regulations, seniority, collective bargaining agreements, residency requirements, etc.

The 1997 edition of National Fire Protection Association (NFPA) Standard 1500, *Standard on Fire Department Occupational Safety and Health Program*, requires fire departments to develop a written risk management plan that includes member wellness and critical incident stress management as key components. A fire department stress management program should be part of a comprehensive firefighter wellness program (P. Finley, personal communication, September 4, 2002).

Waterhouse (1995) concluded that stress management is everyone's problem and employers can no longer ignore their responsibilities. He believed that a stress management program would be beneficial to his department.

In 2001, Caton wrote:

It is apparent that there are significant benefits from reducing occupational stress for firefighters. A comprehensive stress reduction program will benefit both the employee and their family, psychologically and physiologically, by creating a supportive and healthier job environment. An additional benefit is a long and healthy retirement. The organization benefits from increased morale and reduced sick leave, both of which enhance productivity (Caton, 2001, p. 22).

The results of the "Fire Department Stress Management Survey" showed that 42 of 52 departments (80.8 percent) had some type of stress management program in place (see Table 2). Of these, 41 (97.6 percent) listed access to an Employee Assistance Program as a system component. Twenty departments (47.6 percent) provided stress management training; 14 (33.3 percent) utilized behavioral indicators evaluations by supervisors; 3 (7.1 percent) performed an evaluation during routine medical screenings; and, 12 (28.6 percent) included some other component to their program (see Table 2).

It is important to note that virtually every department surveyed indicated that they had access to a Critical Incident Stress Debriefing (CISD) Team should they require its services. However, CISD intervention is reactive, and, in most cases, only temporarily addresses a single

stressor. When the debriefing is complete, participants are returned to duty, with no acknowledgement of whether the session was a success or a failure.

Nineteen of the 52 departments (36.5 percent) reported they either did not have a stress management program in place, or, would like to expand a very limited program; and, felt that such a move would be beneficial to their department (see Table 3). Amazingly, five departments (9.6 percent of total departments surveyed, and, 50 percent of departments without any type of program) reported that they did not feel that a program would be beneficial to their department. Reasons given included responses such as, "We're pretty laid back around here and don't have much stress".

Only four of the 19 departments (21.1 percent) who did not have a program but thought one would be beneficial, or were looking to upgrade an existing program, planned to actually pursue some type of initiative (see Table 3). Most of the departments who did not plan on doing anything cited finances as the reason.

A number of the authors whose work was reviewed in conjunction with this research support the idea of stress management beginning prior to appointment of the individual to the fire department. They argue that the inclusion of psychological testing in the selection process is a valid method of determining an individual's occupational suitability (Todd, 2001, p. 43) and their ability to withstand job related stressors (IAFF, 1998, as cited in Caton 2001).

Morse (1995) wondered:

>We require extensive physical testing of our recruits for two
>main reasons; one is to make sure they don't hurt themselves
>and the second is to make sure they can do the job. We examine
>their bodies and their minds. Yet we make no effort to examine

their emotional state, which can just as easily cause them to

hurt themselves or fail to do the job. Why is that?

(Morse, 1995, p. 21).

Psychological testing for firefighters is supported by the International Association of Firefighters, and, has been upheld by the courts. Ruling on a suit filed by the American Civil Liberties Union challenging the use of psychological testing for applicants of the Jersey City, New Jersey Fire Department, a U.S. District Court judge wrote, "Psychological evaluations are useful and effective in identifying applicants whose emotional makeup makes them high risk candidates for the job of firefighting" (Fireman's Monthly, as cited in Fire Command, 1978, p. 12). Smelson (1979/1986) found that 12 of 30 firefighter candidates (40 percent) that he screened for employment with four New Jersey Fire Departments, "were not recommended … for the position because of psychiatric disorders, behavioral patterns or characters that the author thought would interfere with the candidates ability to perform departmental duties effectively" (Smelson, 1979/1986).

Most, if not all, fire departments in New Jersey that employ career firefighters require psychological testing prior to employment. The Vineland Fire Department is no exception. However, the Department does not require pre-appointment psychological screening for volunteer members, even though both groups perform identical job functions and operate side by side on the emergency scene. It would seem logical to conclude, that this type of screening would be beneficial for determining true compatibility with the requirements of the job for volunteer personnel, as well as, career members.

There would be little argument that a fire department's greatest resource is its personnel. Without firefighters, a fire department ceases to exist. It would stand to reason then, that fire

department managers and leaders would do everything possible to protect that resource. It also appears reasonable to conclude that stress is a problem in most fire departments, although the severity of that problem may vary greatly, based on many variables, not the least of which is the perception of department members and leaders.

While the results of the "Firefighter Stress Evaluation" and "Firefighter Tension and Stress Coping Ability Evaluation" indicated that the majority of the personnel who participated are experiencing mild or moderate stress, and, they appear to be coping with it fairly well, it has been firmly established that stress is cumulative in nature (P. Finley, personal communication, July 29, 2002; Murdock, 1981/1986; Todd, 2001). As a result, a much more serious problem could be slowly and quietly developing, unnoticed by the Department's supervisors and leaders. Left unmanaged, firefighters who are currently in the mild or moderate stress ranges could be steadily progressing toward more serious stress related problems. In addition, since stress manifests itself in such a myriad of ways, the true extent of the stress related problems is still probably unknown. As a result, in order to effectively confront the issue of stress head-on we must utilize the old football adage that, "The best offense is a good defense". We must be proactive with stress management, and attempt to address the issue before it becomes a problem.

With these thoughts in mind, it appears that the fire departments which participated in this study, including Vineland, may be missing an important firefighter wellness opportunity, by not having a stress management program in place. None of these departments currently have a serious stress problem. Development and implementation of a stress management program will help them to insure that their department remains that way. Each department will need to assess their individual needs and based upon the recommendations of many authors, select program components that will be most beneficial and effective for their personnel.

It is the opinion of the author, that several specific components are mandatory to the foundation of any stress management program. First, education and training are essential to develop an awareness of the problems, its causes, effects, consequences and solutions. Second, there must be unequivocal support by the department administration, both for the program itself, as well as, a commitment to addressing organizational stressors. Third, there must be buy in, and more importantly, participation, by the rank and file firefighters at all stages of the process. The program must be perceived as being a positive resource, not a place for the weak to seek refuge. Fourth, the program must include support components such as a physical fitness program, and, nutrition/dietary information. Finally, the program must be available not only to firefighters, but to their families as well. The health of those close to the firefighter is nearly as important as the health of the firefighter themselves.

Because stress management, stress reduction, and, stress prevention issues cover such a broad spectrum, it also seems to be imperative that the issue of stress in the fire service be addressed in the context of the comprehensive firefighter wellness program. Critical components of a stress management program such as implementation of a physical fitness program, and, dietary and nutrition information, have implications far more wide ranging than just in the context of stress management or reduction. It is also important to emphasize that stress management must be proactive in nature, if it is to be truly effective. Referring personnel to the Employee Assistance Program after they exhibit signs of problems is reactive, and, not in the best interests of either the employee or their fire department.

Doctor Finley noted that any stress management program requires behavioral changes, by the participants, in order to achieve its objectives. This will require a significant degree of commitment and motivation by program participants. If personnel receive training that teaches

them skills and techniques for stress management and reduction, yet, fail to make behavioral and/or lifestyle changes, the program will have minimal, if any, positive impact on them.

Even with the most effective stress management program, some personnel will still inevitably experience stress related problems. When this situation occurs, early detection of the warning signs leading to early intervention, may be vital to a positive outcome. One third (14 of 42) of the Departments that answered the "Fire Department Stress Management Survey" reported that they utilized some type of behavioral indicators evaluation by supervisors, as a stress management tool. These instruments allow supervisors to evaluate employee behavior against a set of established behavioral criterion for the purpose of early identification of any problems, allowing quicker intervention. Referring personnel for additional psychological intervention earlier, but still on an as needed basis may be more fiscally justifiable than on-going periodic psychological evaluations of all personnel. These instruments have proven very effective in use by the United States Marine Corps (P. Finley, personal communication, September 4, 2002), and, should be considered by any department considering implementation of, or upgrading, a stress management program.

In closing, no one can dispute that stress is an issue both in our daily lives and in the fire service. Overall, because of the nature of their occupation, firefighters may experience more stress than the average person. Since stress is cumulative in nature, we can not wait until it becomes a problem to begin to address its ramifications. Like any other potentially serious ailment such as heart disease, cancer, etc., we should take proactive steps to prevent development of the problem. Since stress can be an underlying factor in many of the most serious illnesses, it would seem logical that by reducing stress and/or learning how to manage it, we may reduce our risks in a number of areas. Development, implementation and commitment to a firefighter

wellness program, including a stress management component are vital to achieving that objective. Only when a fire department has a comprehensive and effective firefighter wellness and stress management program in place, one that demonstrates measurable success, can we answer the question, "Are we protecting our most valuable resource?" with an unqualified yes.

RECOMMENDATIONS

The Vineland Fire Department should immediately begin to take aggressive steps to address stress in the Department. The Department should contact the administrator of the city's Employee Assistance Program to determine if the resources and capabilities are present to expand the current program to include stress management for all members of the Fire Department. Based upon the response received here, the Department should either work within the current EAP program to develop a comprehensive stress management program, or, seek funding to develop and implement their own program at the department level. While obviously more time consuming and costly, serious consideration must be given to implementation of an entire firefighter wellness program, in order to provide the structure necessary for effective stress management.

In addition to the local expertise that the EAP coordinator, or, Dr. Finley can provide to the development of this program, the United States Fire Administration publication, *Stress Management: Model Program for Maintaining Firefighter Well-Being*, and, The International Association of Fire Chiefs/International Association of Firefighters, *Fire Service Joint Labor Management Wellness-Fitness Initiative* should be consulted and utilized as program development guides. The creation of a stress prevention committee, comprised of members from all groups within the department should be considered in order to provide a steering and advisory mechanism for input by members of the department.

Stress management should begin prior to personnel joining the Department to determine if prospective candidates have the personality and coping skills necessary to effectively handle and/or cope with the stress they will face in the performance of their duties. This evaluation should consist of a comprehensive psychological screening prior to appointment. This is already done for career personnel; the screening should be expanded to include prospective volunteer members.

All personnel in the Department should receive quarterly training in stress management and coping skills and techniques. The training should consist of and cover all of the components of an effective stress management program discussed in the results for Research Question #7. While perhaps a difficult sell, participation in the training should be mandatory, not voluntary.

The department should give consideration to developing some type of behavioral indicators evaluation, for use by the Department's officers, both career and volunteer. Use of this type of evaluation will hopefully assist with early identification of personnel who are experiencing unhealthy levels of stress, and, allow early intervention to assist them with coping.

The City of Vineland must make a commitment to addressing the organizational stressors that are currently very problematic for the Department. They must implement the recommendations contained in the two consultant's reports with the goal of righting the direction in which the department is headed. They must aggressively seek ways to improve career/volunteer relations in the department. They need to provide adequate funding for the development and implementation of a comprehensive firefighter wellness program, including a physical fitness component, which is well known as an excellent outlet for stress relief.

The results of this study would also strongly suggest the need for an expanded analysis of the data to cast additional light on this timely and strategic issue. Recommendations for further study include:

- An analysis of stress levels and tension levels/coping ability among firefighters differentiated by such factors as age, years of fire service experience, rank, or, geographic region where they live.

- An analysis of stress levels and tension levels/coping ability levels for firefighters in fully career and fully volunteer fire departments for the purpose of comparing those results with the results of this study.

- An analysis of stress levels in firefighters from fire departments with a stress management program compared to firefighters from similar departments without a program.

- A long term study of stress levels, coping abilities, and, the effects of stress management programs on firefighters.

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APPENDIX A

FIRE DEPARTMENT STRESS MANAGEMENT SURVEY

1) Please provide the following background information regarding your fire department:

A) Current population served by your department: _____

B) Geographic location of your department:

_____	Northeast	CT, ME, MA, NH, NJ, NY, PA, RI, VT
_____	Southeast	DC, DE, FL, GA, MD, NC, SC, VA
_____	North Central	IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI
_____	South Central	AL, AR, KY, LA, MS, OK, TN, TX, WV
_____	Northwest	AK, ID, MT, OR, WA, WY
_____	Southwest	AZ, CA, CO, HI, NM, NV, UT

C) Department status = combination: Yes _____   No _____

D) Number of career personnel: _____

   Number of volunteer personnel: _____

2) Do you consider "everyday" job and/or life related stress, faced on a daily basis by your personnel, to be a major problem in your department?

        Yes _____   No _____

3) If the answer to Question #2 is <u>yes</u>, do you feel that there is a difference in stress levels between career and volunteer personnel?

        Yes _____   No _____

4) If the answer to Question #3 is <u>yes</u>, which group do you feel has the greater stress level?

        Career _____   Volunteer _____

   Why? _____

   _____

>>PLEASE CONTINUE ON THE NEXT PAGE>>

5) In the last 5 years, has your department lost any personnel to:

          _____ Stress related retirement
          _____ Stress related resignation
          _____ Stress related long term disability
          _____ Stress related short term disability
          _____ Stress related death
          _____ No stress related losses documented

6) If the answer to Question #5 is yes, are these losses more prevalent with career or volunteer members?

          _____ Career
          _____ Volunteer

7) Does your department have a stress management program in place to assist your personnel in dealing with stress related problems?

    Yes _____   No _____

8) If the answer to Question #7 is yes, does the program include:

          _____ Stress management training for personnel
          _____ Behavioral indicators evaluation by supervisors
          _____ Periodic evaluation by a Psychologist
          _____ Periodic evaluation by other mental health professional
          _____ Evaluation during routine medical screening
          _____ Access to an Employee Assistance Program
          _____ Other (Please describe)

9) If the answer to Question #7 is yes, is the stress management program part of a comprehensive firefighter wellness program?

    Yes _____   No _____

10) If the answer to Question #7 is no, do you feel that a stress management program would be beneficial to your department and personnel?

    Yes _____   No _____

11) If the answer to Question #10 is <u>yes</u>, do you plan on implementing a stress management program?

        Yes _____   No _____

12) If the answer to Question # 10 is <u>no</u>, please provide input on why you feel that a stress management program would not be beneficial to your department and personnel.

_____
_____
_____

Please note that your department will not be identified by name in the research. However, in order to prevent duplicate responses from the same department, I request that you include your department name on the survey form.

        Department: _____

        Contact Person: _____

        Telephone or e-mail: _____

If you would like to receive a copy of the survey results please provide the following information:

        Department Address: _____

                              _____

                              _____

APPENDIX B

Demographic/Background Information about Fire Departments Completing the Survey

Number of surveys attempted :	98
Number of surveys completed:	52
Percentage of surveys completed:	53.06%

Geographic Location of Departments Surveyed	
Northeast	10
Southeast	6
North Central	15
South Central	10
Northwest	6
Southwest	5

Populations of Departments Surveyed	
Minimum population	10,000
Average population	33,906
Maximum population	104,000

Career Personnel in Departments Surveyed	
Minimum number of career personnel	2
Average number of career personnel	32
Maximum number of career personnel	170

Volunteer Personnel in Departments Surveyed	
Minimum number of volunteer personnel	2
Average number of volunteer personnel	32
Maximum number of volunteer personnel	100

Total Personnel in Departments Surveyed	
Minimum number of total personnel	23
Average number of total personnel	71
Maximum number of total personnel	220

APPENDIX C

FIREFIGHTER STRESS EVALUATION

ATTITUDE OR FEELING	*HOW OFTEN FEELING OCCURS*			
	Almost never	*Occasionally*	*Frequently*	*Almost always*
1. My life is running me.	1	2	3	4
2. I must do it myself.	1	2	3	4
3. I feel more isolated from my family or close friends.	1	2	3	4
4. I must not fail.	1	2	3	4
5. When overworked, I cannot say "no" to new demands without feeling guilty.	1	2	3	4
6. I can't seem to get out of bed.	1	2	3	4
7. I need to generate excitement again and again to avoid boredom.	1	2	3	4
8. I feel a lack of intimacy with people around me.	1	2	3	4
9. I feel that people should listen better.	1	2	3	4
10. I am unable to laugh at a joke about myself.	1	2	3	4
11. I am unable to relax.	1	2	3	4
12. I feel increasingly cynical and disenchanted.	1	2	3	4
13. I avoid speaking my mind.	1	2	3	4
14. I feel dissatisfied with my personal life.	1	2	3	4
15. I feel further behind at the end of day than when I started.	1	2	3	4

ATTITUDE OR FEELING	HOW OFTEN FEELING OCCURS			
	Almost never	*Occasionally*	*Frequently*	*Almost always*
16. I feel under pressure to succeed all the time.	1	2	3	4
17. I forget deadlines and appointments.	1	2	3	4
18. I consider myself exploited.	1	2	3	4
19. I am irritable, short-tempered and disappointed in the people around me.	1	2	3	4
20. I'm not where I want to be in life.	1	2	3	4
21. I automatically express negative attitudes.	1	2	3	4
22. I wake up early and cannot sleep.	1	2	3	4
23. I feel dissatisfied with my work life.	1	2	3	4
24. I feel unrested.	1	2	3	4
25. I avoid being alone.	1	2	3	4
26. I have trouble getting to sleep.	1	2	3	4
27. I have trouble waking up.	1	2	3	4
28. Things must be perfect.	1	2	3	4

FIREFIGHTER TENSION AND STRESS COPING ABILITY EVALUATION

FEELING OR RESPONSE	HOW OFTEN FEELING OR RESPONSE OCCURS		
	Often	*A few times a week*	*Rarely*
1. I feel tense, anxious, or have nervous indigestion.	2	1	0
2. People at work/home arouse my tension.	2	1	0
3. I eat/drink/smoke in response to tension.	2	1	0
4. I have tension or migraine headaches, pain in the neck or shoulders, or insomnia.	2	1	0
5. I can't turn off my thoughts at night or on weekends long enough to feel relaxed and refreshed the next day.	2	1	0
6. I find it difficult to concentrate on what I'm doing because of worrying about other things.	2	1	0
7. I take tranquilizers (or other drugs) to relax.	2	1	0
8. I have a difficult time finding enough time to relax.	2	1	0
9. Once I find the time, it's hard for me to relax.	Yes 1		No 0
10. My workday is made up of to many deadlines.	Yes 1		No 0

FIREFIGHTER STRESS EVALUATION BACKGROUND

Please provide the following background information about yourself:

1. Firefighter status: Career _____   Volunteer _____

2. Age:

   _____ Less than 20
   _____ 20 - 29
   _____ 30 – 39
   _____ 40 – 49
   _____ 50 – 59
   _____ 60 or older

3. Total number of years of fire service experience:

   _____ Less than 5
   _____ 5 to 9
   _____ 10 to 14
   _____ 15 to 19
   _____ 20 to 24
   _____ 25 or more

4. Current rank:

   _____ Firefighter
   _____ Company level officer (Lieutenant/Captain)
   _____ Chief Officer (Battalion Chief/Deputy Chief/Assistant Chief/Fire Chief)

5. How would you characterize morale in your department:

   _____ Excellent
   _____ Good
   _____ Fair
   _____ Poor

6. How would you characterize the direction you perceive your department to be headed:

   _____ Department is improving and is headed in the right direction
   _____ Department is maintaining the status quo
   _____ Department is deteriorating/heading in the wrong direction

7. Do you feel that the morale and/or the direction you believe your department is heading effects your level of stress?

           Yes _____   No _____

APPENDIX D

Background Information of Firefighters Completing Stress Evaluation

Status of Firefighters Surveyed	
Career	46
Volunteer	69

Age of Firefighters Surveyed	
Less than 20	10
20-29	29
30-39	37
40-49	26
50-59	8
60 or over	3

Fire Service Experience of Firefighters Surveyed	
Less than 5 years	22
5 – 9 years	25
10 – 14 years	17
15 – 19 years	16
20 – 24 years	13
25or more years	20

Current Rank of Firefighters Surveyed	
Firefighter	88
Company Level Officer	16
Chief Officer	8

How Firefighters Surveyed Characterize Morale in Their Department	
Excellent	9
Good	44
Fair	36
Poor	24

How Firefighters Surveyed Characterize the Direction They Perceive Their Department To Be Heading	
Department is improving/headed in the right direction	44
Department is maintaining the status quo	39
Department is deteriorating/headed in the wrong direction	30

Firefighters Surveyed And Whether Morale and/or Department Direction Affects Their Stress Level	
The morale and/or the direction they believe their department is heading affects their level of stress	61
The morale and/or the direction they believe their department is heading does not affect their level of stress	52